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# EME JOURNAL

The Magazine of the Land Electrical  
and Mechanical Engineers



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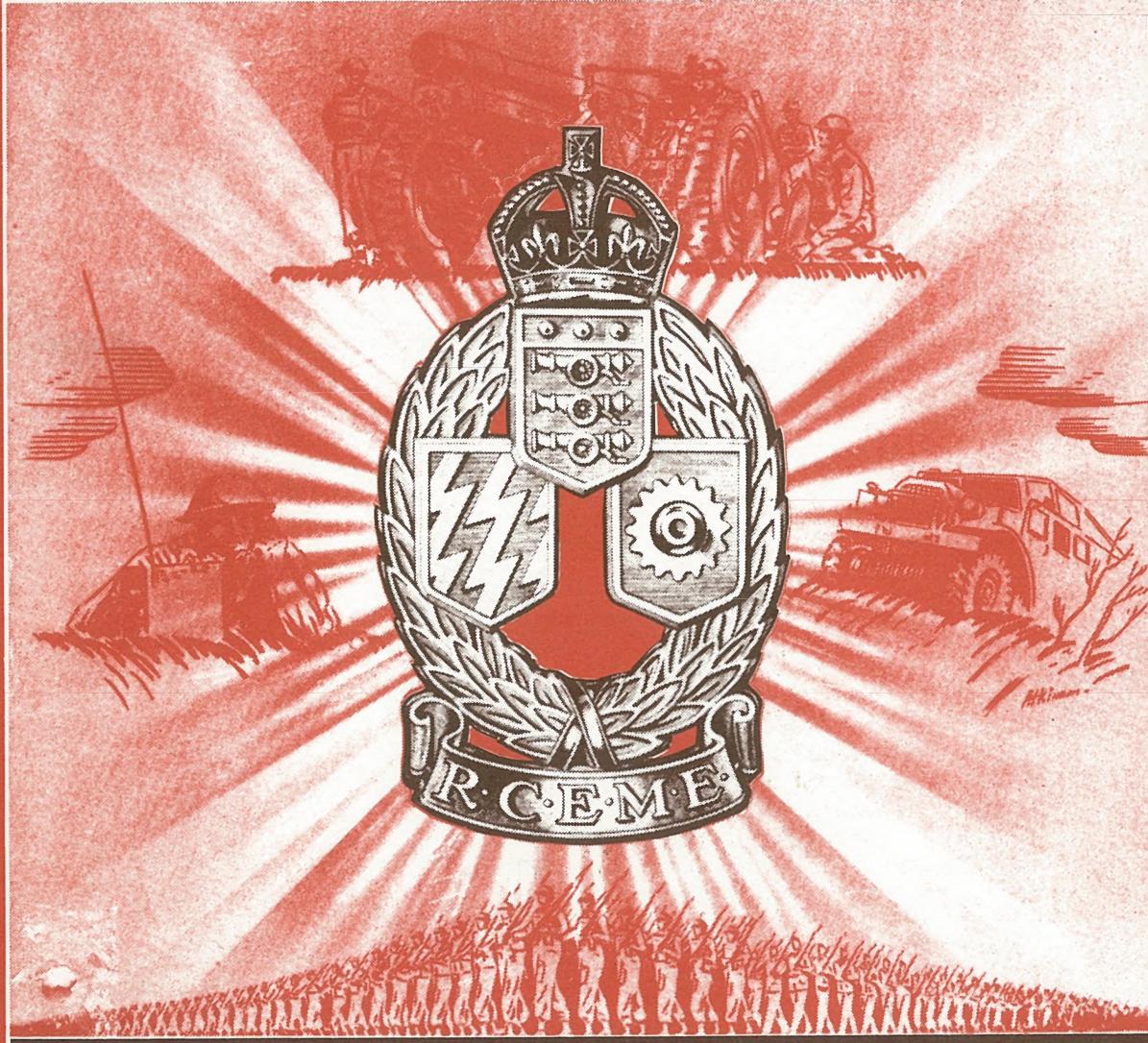
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40th ANNIVERSARY - RCEME

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## ARTE ET MARTE

## EME JOURNAL

The EME Journal is the magazine of the Land Electrical and Mechanical Engineers, published at NDHQ under the terms of reference of the Director General Land Engineering and Maintenance and the LEME Branch Adviser. The purpose of the publication is to disseminate professional information among members, and exchange opinions, ideas, experience and personnel news, and promote the identity of the LEME Branch.

The EME Journal depends upon its readers for content. Articles on all aspects of the Electrical and Mechanical Engineering System, photographs, cartoons, people news and comments are solicited. Readers are reminded that the Journal is an unclassified and unofficial source of information. The contents do not necessarily represent official DND policy and are not to be quoted as authority for action.

Contributors are asked to submit the original text typewritten, double spaced, paper size as herein. Photos should be sharp, glossy, black and white prints with captions typed separately. Personnel should be identified in all cases, both text and captions, by rank, initials, surname, trade and unit.

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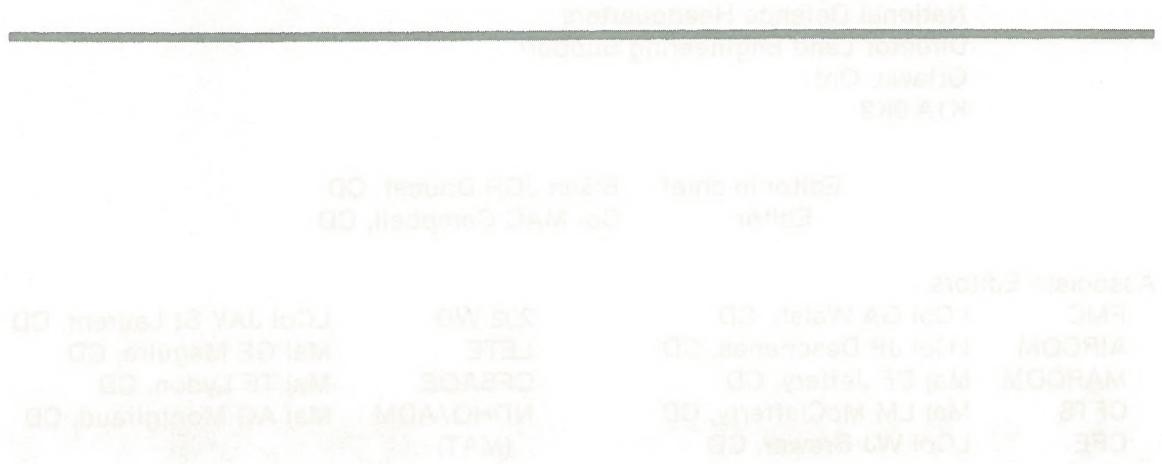
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In keeping with the change of Branch name from Land Ordnance Engineering (LORE) to Land Electrical and Mechanical Engineering (LEME) effective 15 May, 1984, the title LORE Technical Bulletin is now changed to EME Journal.

Featured is a reproduction of the cover of the June, 1944, "CAM" Maintenance Magazine, showing the first RCEME badge. Inside is an article reprinted from this same issue of "CAM" which describes a major reorganization of the repair and maintenance services of the Canadian Army Overseas and in Canada when, on 15 May 1944, a new Corps, the Royal Canadian Electrical and Mechanical Engineers came into being.

"CAM" was published monthly from Oct. 1943 to Sept. 1945, the end of the Second World War. The final edition noted: "With this issue CAM suspends its operations as a maintenance journal of a mechanized army at war. The "V" days have come and our citizen army that Canada built into a smooth and expert fighting machine breaks step to revert to the tasks of peacetime citizenship".



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## FROM THE COLONEL COMMANDANT



Col (Retd) GW Bruce, CD

Forty years ago I was a Captain in the 8th New Brunswick Hussars, an armoured regiment in the 5th Canadian Armoured Division, sitting in Pignatora, Italy, just prior to the assault on the Hitler and Gothic lines, which we began on 24 May, 1944. All our equipment was in nearly perfect condition. In the Gothic line in one day we lost 24 tanks (half to track problems caused by the steep slopes) — 24 hours later we had 24 replacement tanks. This type of remarkable support was in large part due to the efficiency of the unit tradesmen, the unit RCEME LAD and the supporting RCEME Workshops which throughout the war provided ever increasing timely and skilled support.

It is fitting that the date chosen to rename our Branch to the Land Electrical and Mechanical Engineers is 15 May 1984, the 40th Anniversary of the Corps of RCEME. The symbols of our beginnings are indeed displayed with pride.

Other significant changes during the recent past have helped strengthen our sense of family throughout the Branch. The concept of "Unit Self Sufficiency" has returned personnel files to units and given back much of the responsibilities lost in the base concept. In the Schools, army field training is now given to all ranks, and the Corps and Branch history is part of tradesman and officer

cadet training. In addition, much of the officer and other rank training is integrated to further re-introduce the family aspect of our traditions. The recent authorization of unit shoulder flashes adds a sense of belonging and unit pride.

The creation of the Fire Control Systems Technician, with its Electronic and Optronic subdivisions, has improved the EL M technicians trade and brought it closer into line with the skills required. The new trade, Materials Technician, recognizes the distinctive characteristics of the land environment and should improve the training and skills of these tradesmen, as well as their careers.

With the explosion of technology, EME technicians and officers have quietly maintained their pursuit of excellence and retained the deep seated determination to give full support to units. No doubt the admiration of arms units and the recognition of the key position EME holds added considerable weight to the submission of the Branch request for a name change to LEME. You have every reason to be proud of the service your Corps and Branch has given over the past 40 years. I am sure that your work and professional skills over the next 10 years to our 50th Anniversary will bear the same stamp of dedication and excellence.

## FROM THE BRANCH ADVISER



Bgen JGR Doucet CD

It was not mere coincidence that my 1984 EME Conference at CFB Borden in May took on the theme of the impact of technology on maintenance and engineering activities.

Forty years ago on 15 May, 1944, RCEME was born at the height of the Second World War. The purpose was to organize scarce electrical and mechanical engineering skills in a manner which would effectively cope with the swift technological changes and maintenance techniques inherent to that wartime environment. RCEME played a vital role in support of the fighting forces in all theatres, clearly demonstrating the success of the new Corps.

Afterwards, RCEME continued to flourish as a Corps, gaining further operational experience and honours in Korea, 1950-53. Then, upon unification of the Forces in 1968, RCEME became the Land Ordnance Engineering (LORE) Branch and continued to maintain high visibility during peacekeeping and NATO duties at home and abroad. We re-affirmed our *raison d'être*. In its most simple terms we share, together with the

whole of the Canadian Forces, the common aim of training for war. Within this aim we have, as a Branch, the responsibility to be professional soldiers and to provide, in peace and war, the engineering and maintenance support for all land ordnance systems.

Now, to better identify the functions of the Branch, the EME terminology has returned and on 15 May, 1984, LORE became the Land Electrical and Mechanical Engineering (EME) Branch.

Running through the past 40 years' has been a thread with which you have adapted so well — technological change. We have celebrated our 40th Birthday and have a new name. The Corps and Branch have brought us into middle age, characterized by maturity, experience, confidence and knowledge.

We can look back on a proud heritage and as we gather strength for future challenges we must harness the ever more complex technologies to improve our service to the combat soldier.

# R.C.E.M.E.

## The Corps of Royal Canadian Electrical and Mechanical Engineers

A major reorganization of the repair and maintenance services of the Canadian Army both overseas and in Canada took place when, on the 15th of May 1944, a new Corps, the Royal Canadian Electrical and Mechanical Engineers, came into being.

The function of this new Corps can be set down under four main headings.

First — Inspection and Maintenance of Wheeled and Tracked Vehicles, all artillery (including field, anti-aircraft and coast defence), small arms and machine guns, radio-location, fire control and all other instruments, signalling equipment and transmitting sets and the installation of coast artillery machinery.

Second — the recovery and repair of all the above equipment consequent upon ordinary wear and tear or battle casualties.

Third — Investigation into defects of design and recommendation for improvements.

Fourth — Advice on prototype design from a maintenance angle.

Thus the R.C.E.M.E. have assumed the chief responsibility for maintenance and repair for the Canadian Army — a job that previously had mainly been carried out by the R.C.O.C. in addition to their responsibilities for the provision and supply of technical stores, general stores and clothing.

Forming an inalienable part of this responsibility is the close liaison between R.C.E.M.E. and the Designing Engineers, the Manufacturers, the Inspection departments and Procurement branches. Similarly the factors of unit maintenance in relation to unit responsibility for the equipment on charge together with the training of operators, mechanics and general tradesmen is encompassed within these ramifications.

The R.C.O.C. will continue to hold the spare parts for repairs but R.C.E.M.E. will hold in their workshops only a working stock of such spare parts. This necessitates the closest co-operation between the two corps.

Certain electrical and mechanical engineering duties have also been transferred to R.C.E.M.E. from R.C.E. and R.C.A.S.C. The R.C.E. however, continue to be responsible for the provision and repair of certain equipment peculiar to themselves, and the R.C.A.S.C. continue to operate Workshop platoons of R.C.A.S.C. personnel which form an integral part of their transport companies and carry out repairs within the R.C.A.S.C. forward areas.

Obviously the rapid increase in the use of technical equipment for military purposes during the present war has brought with it the need for an immense and ever increasing volume of maintenance and repair. And these maintenance and repair

services must be designed to keep such equipment in the highest state of efficiency under all conditions.

Therefore, with this in mind, the R.C.E.M.E. was authorized with two main objects in view.

- (a) to provide more satisfactory direction and co-ordination of maintenance and repair services.
- (b) to provide more economical use of skilled manpower in the Canadian Army.

Canada has the advantage of precedent in the parent British Corps. The formation of the R.E.M.E. Corps in the British Army was the result of exhaustive study and investigation over a period of years by several committees of high ranking officers and eminent industrialists. One of the most outstanding reports in this connection was that of Sir William Beveridge's Committee on the 'Use of Skilled Men in the Services', presented by the British Minister of Labour and National Services to Parliament. Para. 44 of this report, which proposes the formation of a Corps of Mechanical Engineers in the British Army reads in part as follows: —

**"A Corps of Mechanical Engineers** ..... that the Navy has had, for so long, an engineering branch of high authority and has had other technical branches specialized on torpedoes and electricity ..... The Navy is machine-minded. The Army cannot afford to be less so. The Navy sets Engineers to catch,

(Editorial Note: In this issue of the EME Journal featuring the 40th Anniversary of the formation of RCEME, we reprint an article from the June, 1944, CAM, Mechanical Maintenance Magazine, which provides detail on the background and organization of the new Corps, as seen at the time).

test, train and use Engineers. Until the Army gives to Mechanical and Electrical Engineers, as distinct from Civil Engineers, their appropriate place and influence in the Army System, such engineers are not likely to be caught, tested and trained so well as in the Navy; there is danger that they will be misused by men whose main interests and duties lie in other fields."

It is not surprising then that in 1942, on the 1st of October of that year, the R.E.M.E. Corps came into being in the British Army. The progress and operation of this British Corps has been closely watched and has been the object of constant study by officers concerned with maintenance and repair in the Canadian Army. Based on these studies and observations and after much deliberation of the various phases of maintenance and repair, both in Canada and the Canadian Army in the field, it was decided to regroup the maintenance and repair services during wartime.

The bulk of the personnel for the new Corps were drawn from the maintenance and repair groups and units of the R.C.O.C. The officer personnel of the corps consists of Electrical and Mechanical Engineers and Mechanical Officers, whilst of the Quartermaster category there are Assistant Electrical and Mechanical Engineers, Assistant Inspectors, Armourers Services and Workshop executive Officers.

To qualify as an E.M.E. Officer, candidates must be in possession of a degree of B.Sc. in Mechanical or Electrical Engineering or have good practical mechanical or electrical engineering experience and general education suitable to the needs of the R.C.E.M.E. Corps. The appointment of Mechanical Officers is restricted to personnel in posses-

sion of sound practical experience and general education suitable to the needs of vehicle maintenance. Officers of the Quartermaster category are appointed from the ranks of the Armament Artificer, Artisan and Armourers sections.

Other ranks of the R.C.E.M.E. Corps can be divided into five sections or categories, namely: Armament Artificers, Armourers, Artisans, clerks and storemen, and general duty — non tradesmen.

How will the R.C.E.M.E. Corps function in the field? There again the tried and proven British counterpart provides the model. Called the Echelon System of Repair the system is composed of four echelons — or zones, each with a definite normal function, which combined with the considerations of the types of equipment to be served, at once fixes the corresponding repair equipment to be provided to each R.C.E.M.E. Unit and also the technical personnel and stores required.

By confining the lower echelons (1st and 2nd) to minor and quickly made repairs and adjustments and the exchange and replacement of assemblies, the higher 3rd and 4th echelons equipped with greater facilities in equipment and personnel perform the major and more involved repairs.

First echelon repairs consist of adjustments and light repair, which are carried out both by the Unit concerned and R.C.E.M.E. personnel in the form of Light Aid Detachments, the latter in general carrying out minor repairs beyond Unit capacity and assisting the Unit in recovery. The Light Aid Detachment, the smallest type of R.C.E.M.E. Unit, is commanded by a subaltern or warrant officer and is wholly identified with the Unit, Regiment or Brigade

which it serves. To Light Aid Detachments fall the task of locating casualties and, if possible, repairing them on the spot. Another chief function of an L.A.D. is to keep the roads clear for movement.

Behind the Light Aid Detachments and situated in the Divisional area are the Brigade Workshops. These are divisional troops, but are normally allocated to Brigades which they serve. Their basic function is repair by assembly exchange — designated as 2nd echelon repairs.

Brigade Workshops, as with all types of R.C.E.M.E. Workshops in the field are divided into specialist sections to deal with different classes of equipment and are correspondingly scaled as regards technical personnel and facilities.

Thus each repair section is based on the class of repair, quantity and type of equipment to be maintained, average frequency of repairs and the mobility required of the Workshop.

The equipment and facilities of these units take the form of machinery lorries of various types — thereby providing the necessary mobility and lending itself to organized dispersal and camouflage in order to present a difficult target for enemy aircraft and artillery fire.

They work in close liaison with the Light Aid Detachments in front of them, and under certain circumstances, an advanced Workshop detachment is formed from the Workshop Unit personnel and equipment for carrying out repairs on the spot which are beyond the capacity of the L.A.D. and Unit maintenance personnel. This arrangement overcomes the need for recovery of a large percentage of casualties to the parent workshop. These advanced workshop detachments

— while they cannot be regarded as a cohesive field workshop — are highly mobile and consist of a number of servicing detachments.

Third echelon repairs are defined generally as assembly repair by exchange of components, whereas complete overhauls and rebuilding comprise 4th echelon repairs. Where absolutely necessary 4th echelon Workshops carry out manufacture of components.

Workshop Units whose basic function is 3rd echelon repairs may be situated in the Corps or Army area. These units are semi-mobile and although they are actually corps troops their location is often a matter of mutual adjustment between Army and Corps headquarters. They are not required to move frequently and their transport is limited. 3rd echelon shops in many cases also share the work of 2nd echelon units during rush periods and sometimes even take their place in an emergency.

Finally there is the 4th echelon represented by the large base and advanced base workshops. These workshops are on fixed sites, the equipment being scaled to undertake continuously the heaviest type of repairs. Power, light, heat,

water, road and rail access are essential if such workshops are to function efficiently within reasonable time limits.

The evacuating of heavy vehicles and armaments to rail or road heads for clearance to 3rd and 4th Echelon workshops is carried out by the R.C.E.M.E. Recovery Companies.

Under normal conditions the L.A.Ds. and Brigade Workshops carry out recovery operations in the Divisional Areas. However in circumstances where heavy casualties occur, sections from these Recovery Companies, amply supplied with heavy tank transporters, breakdowns etc., move into the Divisional Areas and assist the L.A.Ds. and Brigade Workshop recovery units. Under these same circumstances additional recovery assistance may be given by R.C.A.S.C. Transporter Companies, engaged normally in bringing up new equipment.

One of the less functional yet very essential items that go with the formation of any new corps is the designing of badges, buttons, flashes, cap colours, etc.

This matter involved the consideration of many and varied suggestions as to the design and colour of badges — the conscientious efforts of interested

amateur and professional designers.

The adopted badge design is shown on the cover of this issue. The shields represent the three divisions of maintenance, i.e. Armaments, Telecommunications and Vehicles. The wreath is the traditional heraldic laurel design representing victory and the surmounting crown symbolizes the Sovereign ownership.

The colours of the Corps follow those of the British R.E.M.E. which are dark blue, yellow and red — derived by combining the colours of the R.C.O.C., R.C.A.S.C. and R.C.E.

The buttons, which incidentally are not likely to appear during this war, are simple in design and contain just a single gun of the same design appearing on the Armament shield in the R.C.E.M.E. badge.

This, then, is R.C.E.M.E. — new in name but wise in experience gained from the parent R.E.M.E. Corps in North Africa, Sicily and Italy, which has already established an enviable record and does honour to the Corps from which it was formed. It will most certainly make a name for itself in this war and its inception will be remembered as a step forward in military organization and efficiency.

# FROM RCEME TO LEME: FORTY YEARS OF ELECTRICAL AND MECHANICAL ENGINEERING FOR CANADA'S LAND FORCES

by Col (Retd) Murray Johnston

On 15 May 1984 a ceremonial parade was held at CFB Borden marking the change in name of our branch to the Land Electrical and Mechanical (LEME) Branch. The parade, complete with its rollpast of historical vehicles, reflected the pride we all have in the name EME. The day, however, was cold and blustery — in some respects sombre but ideal for reflecting on the reason for the pride in the new branch name; what had started this pride and how had it been maintained over the past 40 years.

Reflecting on this as I looked out past the parading Craftsmen, across the Borden airfield to the distant hills, my thoughts drifted back to that same day 40 years ago when RCEME, the Royal Canadian Electrical and Mechanical Engineers, was formed. On that day, the Three Rivers Regiment, supported by the Craftsmen of 59 Light Aid Detachment (LAD) RCEME, using vehicles not unlike some of those in the marchpast, and advancing over terrain not unlike that around Borden, were leading an attack through the "Horseshoe" to secure the Cassino-San Giorgio road in Italy. The unit was supporting the Indian Corps offensive, as were the two other tank regiments of 1st Canadian Armoured Brigade. These latter two regiments had led the Indian Corps attack across the Gari a few days before. In that action, three members of their LADs had been decorated for heroism, as had two members of 59 LAD the previous December at Ortona.

All had risked their lives in the face of enemy fire in the front line as part of combat units, in order to keep equipment in battle. This is the basis on which unit pride is built.

As the LADs of 1st Canadian Armoured Brigade were in action that day, the Craftsmen of the two divisions of 1st Canadian Corps were making final adjustments in readying their divisions' equipment for the Corps attack starting the next day across the road and on up the Liri valley to Rome. Their special organization for this advance and hard work during the battle, continued the record of service, cemented bonds of camaraderie

and created a special esprit de corps that is forged only in the crucible of war.

But that record of service, camaraderie and esprit de corps, continues today, as reflected in the pride in which the name EME was reinstated in the branch name. Why has this pride continued?

The answer to that question is that the focus of identity for us in the LEME Branch is the branch itself and the members of the branch, rather than the units of the branch (This contrasts to the infantry and armour where the focus is the units of those branches). Our branch history, by its title alone, reflects our focus of identity, Canada's Craftsmen: the Story of RCEME and LORE. This was reinforced during the many interviews I conducted in writing the branch history. In fact, a look at some of those interviews, and how and why the history was written, provides a good view of the past 40 years and an answer to our pride in our branch and its new name.

The branch history project really began as a result of a conversation during a POITS (EME Ottawa Officers' Happy Hour) in the fall of 1974. The gist of the conversation, as I recall, centred on branch identity. As a result of that conversation, and with the strong encouragement of BGen Ernie Creber, then the Branch Adviser, I offered to help by writing a branch history. Soon after, I visited Borden and delved into the material (all three dozen file cabinets, or equivalent!) in the Museum.

At that time, the Colonel Commandant, Col Don Maclean, offered his help. He read and commented on some early drafts of several chapters and advised me to always travel with a tape recorder. One of the problems he noted was that RCEME/LORE had paid more attention to rendering service than to writing about their exploits. Consequently, he suggested, the best historical material was in conversations with Craftsmen. He was right. The two dozen or so cassettes I made of interviews with many Craftsmen represents a rich historical legacy that was only just touched upon in writing the branch history.

In the spring of 1975, LCol Reid Goulding, then CI at the School, asked me to make up an illustrated lecture to tell the graduating Phase IV class about LORE as a peacekeeper. Reid, himself a Korean and UNEF I veteran, felt that the value of peacekeeping in branch identity was being lost. He had been a member of the Commonwealth Tels Workshop in Korea and knew the value of branch identity, as well as national identity in that multi-national unit.

During the preparation of that lecture I met LCol Don Porter, then just returned from the Golan Heights. He mentioned the existence of the unedited films taken of the deployment into the Golan that previous summer. Under the auspices of BGen Jack Vance, then Director General Training, Don Porter and I collaborated in producing the training film, Camp Roofless. The original rough cut of that film, plus the pictures and interviews I had had with many former LORE peacekeepers, formed the basis for my lecture to the Phase IV class, and was later extended as the basis for Section Three of the branch history. More importantly, it showed the continuing involvement of Canada's Craftsmen in the forefront of duty around the world.

In early 1975, I was invited down to Kingston by the then Base Commander, Col Bob Screamton, to attend a special meeting of The LORE Association to discuss the history project. That night, I taped nearly two hours of anecdotes and conversation and, for example, learned much about pre-war activities from BGen Ken McKibben, and post-war apprentices from Maj "Shorty" Lodge.

And so the history project developed. By word of mouth it became more widely known and former and serving Craftsmen were referred to me for interview, or wrote me letters. One, Col George Beecroft, then 85 years old, contacted me while I was visiting Toronto, picked me up at my hotel, and drove me to his home for an interview. The wealth of material I taped that night and pictures he gave me, became the subject of a *Sentinel* article and the basis of another idea — use the rough draft chapters as teaching notes for corps training at the School. This idea, under the aegis of Maj Peter Vlossak, then OC LORE Coy, culminated with early morning runs of the Phase III and Phase IV classes being accompanied by the loud singing of *Lillibullero* and *Auprès de ma Blonde!* Branch identity refined to a point!

By late 1981 the history project had been developing slowly and steadily, but with no particular time schedule. That autumn, Maj Norm Graham and I discussed the project at the annual meeting of The LORE Association. He suggested that the Association should sponsor the publication of the history. I responded that 1984, the 40th Anniversary of RCEME, was a suitable date.

At that time, however, there were several chapters to be completed. Volunteers came forth to write them. Then, proofreaders and typists were needed. Volunteers came forth to help. The history project suddenly had a completion date goal and changed from a one man to a team project. All work was done on an unpaid, volunteer basis with the copyright vested in the Branch Association. As the history project neared completion these factors provided positive evidence of the continuing focus on branch identity.

My reveries during the May 15th parade were suddenly interrupted by BGen Rolly Doucet announcing his acceptance of the first copy of the branch history, concurrent with the change in branch name. He then presented me with his copy of the sculpture "The Craftsman".

That ceremony of presentation typifies the sense of unity within the branch. The parade, ceremonial and rollpast typified *esprit de corps*. Of particular significance were the efforts of those Craftsmen who ensured that the representation of vehicles in the rollpast ranged from the Second World War through to the future. It typified record of service. The fact that the ARVs were given the right of the line on this first LEME parade indicates that pride of branch is still high.

The Base Borden all ranks corps birthday dinner-dance that evening reflected the continued camaraderie within the branch. That evening, nearly 50 young Craftsmen/Craftswomen asked me to autograph copies of the branch history. This I did, addressing my note to Craftsman . . . . Their interest in this book shows branch spirit and reflects credit on the training staff at the Schools, and maintenance staffs in units and bases.

It augers well for the LEME Branch.  
Nunquam Non Paratus.

## MEMORIES OF A WARTIME CRAFTSMAN

This was my home infantry unit. There were 12 other Stewiacke men in the unit, three of them in the Anti-tank Platoon along with me. I had six, 6 pounders to maintain.

During preparations for the invasion, I received the same instructions, ammunition, grenades, and the same rations as other unit personnel.

One of the first things I did was to put some fun in gun drill. I made brackets and mounted a Bren gun on the barrel of a 6 pounder and as each gun crew went through their drill they could fire the Bren gun when they pulled the trigger on the 6 pounder, and they kept score of the hits on a target.

The LCTs that took the Anti-tank Platoon carriers and guns over to France had only so many bunks, so I was sent over to "C" Coy as their craft had some extras. I sailed from Southampton on 5 June, 1944 with them, arriving at the beach approximately 0930-1000 hrs 6 June. The Sgt Armourer was on the same boat and I was off and ashore before him, and always kidded him that I was the first of our Corps ashore on D Day. Our boat was in and started to unload as the other LCT nosed in. The 8th Cdn Inf Bde had most of the town of Bernières-sur-Mer cleared and they had no RCEME personnel in the assault units (first wave of infantry).

When the Bn moved into battle at 1700 hrs I was with the reserve Lt of the Anti-tank Platoon. We did patrols that evening until midnight and spent the rest of the night in an open field to watch for paratroopers that were expected. Next morning we were back on patrol again and the four of us captured three Germans that were by-passed by the infantry the evening before.

The morning of 8 June, those that were LOB moved up to the Bn as they had lost most of the rifle coys the evening of the 7th. I went to the Anti-tank Platoon as a gun number and was with the crew that had knocked out two armoured cars and a half track the day before. The Sgt and a Pte won the MM for their action, so I felt pretty good to be helping them. They had looked at me back in



F86444. Cfn Clifford Brown. Born Stewiacke, N.S., 28 Jan 1924. Enlisted 30 Jan 1942. Overseas 27 Aug 1943. RCOC/RCEME. Attached fap to the North Nova Scotia Highlanders, 9th Bde, 3rd Div, Mar 1944.

England a 20 year old kid setting the sights on the gun with a piece of string and a church steeple, and now I figured I was a pretty good fitter. When we moved into the line that morning, the truck that brought us up the few miles was hit on the radiator and me being in the front of it, found a large piece of shrapnel in my small pack when I went to shave the next morning. I had been leaning against the front of the canvas cover for balance, when we were moving.

I spent the next 30 days on that gun and also made my rounds to the other five guns. During the period 8-11 June, they were not sure if the Germans had some of our uniforms taken from prisoners on 7 June, so when they would see a guy with Royal Canadian Ordnance Corps on his shoulder they would hold me at gun point until I could convince them that I was in the same army, and us Corps troops sometimes had to do front line duty as well as them, as I went through their coy lines to where

---

the guns were. With hundreds of reinforcements in, no one knew each other. The evening of the 11th, my Sgt fixed things up for me as I got a North Nova hat and badge, and shoulder flashes, and then I could go any place with them without question. I wore these with pride until I left them in Dec. My Christmas present was to go back to 9 CIB Workshop, where we slept in an unheated school house and were shelled every day, trying to set the gas works on fire where we worked.

The first time the Bn was out on rest 13-16 July, I was presented with a beret and a RCEME cap badge and shoulder flashes, but didn't sew them up until Dec. That's the first I knew they were forming a new Corps (there is a Mr. Campbell living in Lincoln, N.B. who was one of the first in the new HQ, RCEME).

The North Nova Scotia Highlanders had 850 casualties the first six weeks in France, more

than half the total for the 11 months they were in action.

The casualty identification tag we all carried on D Day, the typed instructions, and the commando knife issued to me are all in the museum at CFB Gagetown.

When you are attached for all purposes to an infantry battalion during a war — they sure mean for all purposes.

I go to the North Novas reunions in Aug each year, and feel that I'm really one of them.

Contributed by:

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# Canada's Craftsmen

Detach this section and mail



**The Story of the  
Corps of Royal Canadian  
Electrical and  
Mechanical Engineers  
and of the  
Land Ordnance  
Engineering Branch.**

by  
**Colonel Murray Johnston**



## ORDER FORM

To: LCol R.R. Hilliard, CD, AdeC.  
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## HOW THIS BOOK CAME ABOUT

In the years just after World War II, DME published a brief history of RCEME operations in World War II. This was a text book history designed to teach maintenance tactics. Following this, several brief documentary histories were published. These were aimed at outlining current facts about flags, buttons and badges, etc. During the 1950's the RCEME association initiated a project to prepare an extensive Corps history. However, a lack of written records prevented the completion of this project beyond the stage of preparing a comprehensive chapter outline.

In the early 1960's LCol R.H. Hodgson was able to assemble a comprehensive collection of records. From these he prepared extensive lists of RCEME units and prepared drafts of some aspects of unit stories and campaign outlines. The draft of his work, completed in 1967, is now deposited at the Museum at Canadian Forces Base, Borden.

In 1974 Col M.C. Johnston undertook to finish writing the Corps/Branch history. Working on a volunteer basis he collected nearly 300 additional documents including many recorded interviews which he conducted with many craftsmen past and present. (These documents are currently deposited at the Museum at Canadian Forces Base, Borden). The project developed slowly and thoroughly with the active participation of many craftsmen who helped as researchers, drafters, photographers and proofreaders. By 1982 as the project was nearing completion, the LORE Association agreed to sponsor the publication of the book.

CANADA'S CRAFTSMEN is 300 pages in length and includes 90 photographs, several appendices, a bibliography, list of abbreviations and comprehensive index. It will be of interest to the casual reader and serious military historian alike. The publication date is 15 May 1984 to coincide with the 40th anniversary celebrations of the formation of RCEME. The book is being sold on a non-profit basis for \$12.50 and is available from the Treasurer, LCol Bob Hilliard. (Please complete order form attached).

# RCEME

## 40TH BIRTHDAY

### 15 MAY 1984

### "ARTE ET MARTE"

## 40 YEARS OF ELECTRICAL AND MECHANICAL ENGINEERING SERVICE

by Capt PC Nolman

Thus announced posters, routine orders and newspapers in the Borden area prior to 15 May 1984.

This favourable press was generated by two important events — the 40th Anniversary of the formation of the Corps of RCEME and a change of Branch name. The background of both events is reported elsewhere in this Journal.

On 15 May 1984 the name Land Ordnance Engineering Branch (LORE) was replaced by Land Electrical and Mechanical Engineering Branch (LEME).

Now we are once again Electrical and Mechanical Engineers!

The day saw not only a name change but also many other activities. The first event was a parade of celebration. The reviewing officer was MGen JA Fox, OMM, CD, Chief of Personnel Development at NDHQ. He took the salute on both the march past and the roll past.

Other distinguished guests attending the day's activities were Col (Retd) GW Bruce, CD, who has been Colonel Commandant of the Branch since 1 July 1983, and BGen JGR Doucet, CD, DGLEM and our Branch Adviser. There were also many other distinguished guests who attended the celebrations.

The parade consisted not only of a march past and a roll past, but also saw the official signing of the scroll changing the Branch name.





MGen JA Fox, CPD, inspects Artisan Coy with Maj Pickford, Coy Commander, accompanied by Col JI Hanson, Commandant, CFSAOE (left) and Col (Retd) GW Bruce, Colonel Commandant of the LEME Branch



Maj (now LCol) FG Parsons, NDHQ/DLES, and MWO JPE Bizier VEH TECH 411 take part in the Roll Past in an ILTIS



BGen JGR Doucet, DGLEM and EME Branch Adviser (left) and Col (Retd) GW Bruce, Colonel Commandant, look on as MGen JA Fox signs the scroll changing the LORE Branch name to the LEME Branch



Col (Retd) RF Potter, President, The LEME Association, presents a copy of the history *Canada's Craftsmen* to Col (Retd) GW Bruce, Colonel Commandant, while the author Col (Retd) MC Johnston looks on

These events were followed by a brief reception in the Maple Annex for the guests, Officers, Warrant Officers, senior NCOs and their ladies.

A Barbecue was held at noon for all and afterwards a sports afternoon beginning with a parade of athletes and a costume competition. In spite of it being a real blustery afternoon all seemed to have a very enjoyable time.



BGen Doucet presents a model depicting "The Craftsman" to Col (Retd) Johnston in recognition of his many years work producing *Canada's Craftsmen*.

Midway through the sports afternoon, Col Bruce officially opened a recently renovated wing of the Base Borden Museum that is dedicated to the Corps.

The culmination of the days activities was an evening buffet/dinner dance that was well attended and greatly enjoyed.

## TYPICAL OF THE NUMEROUS OTHER 15 MAY 84 CELEBRATIONS HELD THROUGHOUT THE BRANCH WERE THE FOLLOWING:

**Eastern Canada** — At 202 Workshop Depot, Longue Pointe, there was a parade and "vin d'honneur", the latter including all members of the Depot, both military and civilian. The parade was reviewed by BGen HR Wheately, COS Admin, FMC HQ. To mark the occasion he presented the CO, Col LA Leflar, with a commemorative certificate of the name change from LORE to LEME.

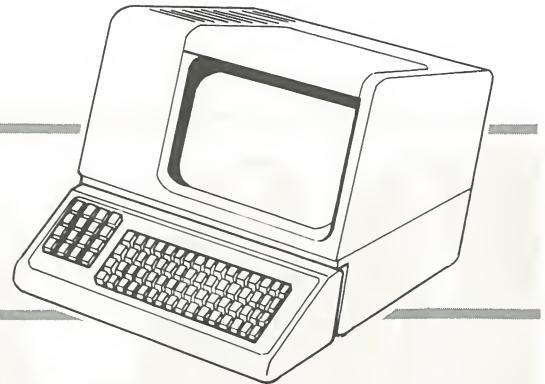
Meanwhile, over at CFB Montreal, there was an "Open House" at Base Maintenance (Land). The successful day began with a parade and review by the Base Commander, Col AL Geddry, followed by a LEME flag unfurling ceremony, presided over by Col V Pergat, DCOS Log, FMC HQ. More than 500 visitors took the opportunity to visit the different workshops and equipment of Base Maint.

**Western Canada** — At CFB Moose Jaw impressive ceremonies were organized by Capt AK Thurrott, BM(L). The reviewing officer for the parade was Acting Base Commander LCol ES Andrichuk who

congratulated the fine turnout of personnel. Then, on 2 Jun 84, a family picnic, followed by a dinner/dance was held, to round off all the LEME Birthday celebrations. All Maintenance personnel in Sask., and their families, were invited.



Acting Base Commander LCol Andrichuk, inspects Base Maintenance personnel. Accompanying the reviewing officer are the BMO(L), Capt Thurrott and the BCWO, Chief Warrant Officer Harding.



by Major Andre Rondeau, DLES 5-2

I would like to use this second "Info Corner" article to give you an update on the activities which have been going on in LOMMIS in the last couple of years. You may not have heard of these, especially if you were not within DGLEM, but it is important for you to be aware of them since they will likely have an impact on your work in the future. In upcoming issues of the EME Journal we hope to present articles which will focus on specific areas of LOMMIS, such as the Modification Status (MS), Equipment Holding, or other sub-systems. The aim of such articles will be to show the relationships between the various OES elements from an information point of view, and hence the requirement for your active involvement at one level or another.

## THE LOMMIS QUERY CELL

One of the basic functions of an information system is to provide its users with accurate and timely data suitable to help them make decisions. It was recognized many years ago, when LOMMIS MK II was being designed, that it should include the capability to answer specific, one-time queries that could not be answered through routine reports. This capability now exists and has been in use since approximately June 1982. The "Query Cell" is run by Capt John Cooper and provides a means of accessing the LOMMIS database by using a programming language called Generalized Information System (GIS). The procedure for having a query done is very simple: if you have an information requirement which cannot be solved by the routine reports you receive, you simply contact Capt John Collings, DLES 5-2-2, who will see if there are other reports which could easily do the job. If there are not, he will refer you to Capt Cooper who will either modify an existing report or design a new one. The only conditions necessary to do this are:

- a. the required data must be available on the database, and,

- b. you must make your requirements known.

## LOMMIS — BSAMMS INTERFACE

In the last issue of the Technical Bulletin, Capt Bruno Cantin gave an update on BSAMMS. This project will have a major impact on LOMMIS in that all workshop-level information will be available directly to workshop personnel, rather than through LOMMIS reports. However, data will still have to be passed from the workshop to LOMMIS in order that national figures can be computed and passed back to maintenance commanders when required. This will all be done electronically of course, which will greatly reduce the amount of paperwork required to feed LOMMIS. A "LOMMIS — BSAMMS Interface Committee" has recently been set up in DGLEM, with the aim of studying the impact of BSAMMS on LOMMIS and determining the changes which will have to be done to the latter to ensure that we have a workable interface. It was clearly explained in the above mentioned article that BSAMMS is not a replacement system for LOMMIS. It is more appropriate to think of BSAMMS as a major enhancement to LOMMIS, since it will provide standardized workshop operations and management procedures throughout the OES, while also providing automated tools to support these procedures. From an information point of view, it will provide more current and accurate data to the central system, without the present paperwork burden. Truly, this is a situation where everybody will be a winner. In fact, once it is completely implemented, BSAMMS will stop existing as a separate entity and will be integrated with the present system.

## THE LOMMIS — CFSS INTERFACE

The advantages for LOMMIS users to be able to get data directly from the CFSS have been recognized long ago and are sufficiently attractive that a considerable amount of effort was expended

in the last few years to try to achieve such an interface. These advantages would include:

- a. doing away with parts costing since this information could be obtained from the CFSS. This would surely be a welcome change for all LEME technicians,
- b. having the capability to do some limited failure analysis for equipments which are not on Detailed (Category A) Reporting. This would be made possible by obtaining actual parts usage for a given vehicle or fleet over a certain period of time.

Here is a very simplified model of this interface:



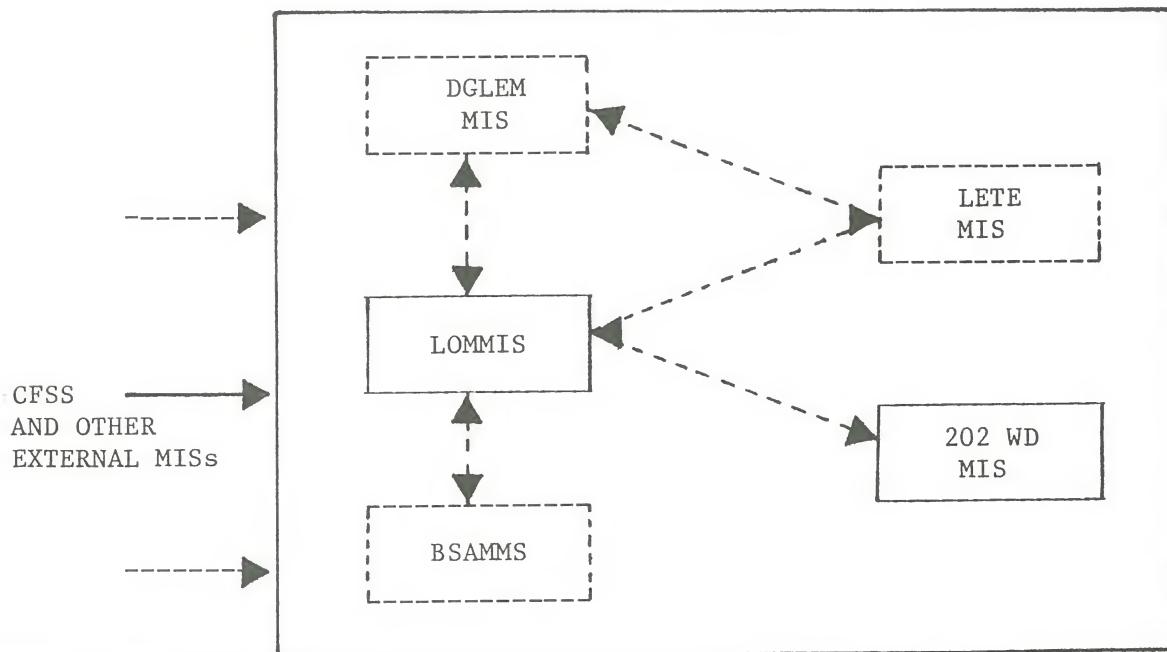
As you can see we access CFSS information by "planting" one of our own codes, the WO Number, in all transactions that concern parts obtained on Land Work Orders. This is done at the Workshop or Base Supply section, by entering this number on the CF 2302 Canadian Forces Supply Document. It's as simple as that. The loop is closed by the CFSS providing us with a monthly "dump", or magnetic tape list, of all transactions concerning Land Work Orders. We presently have approximately three years worth of such tapes and are actively studying their contents to deter-

mine how complete it is, i.e., what percentage we can get to match WO Numbers on the LOMMIS DATABASE. We will keep you posted on developments in this area. In the meantime you can help us help you by checking with your friendly supply reps to ensure that they enter that all-important Work Order Number on the CF 2302, and that it is the proper one, **including the "L" prefix**.

### THE OES IAS STRATEGY PAPER

The concept of an OES Integrated ADP System (IAS) illustrates the fact that information has joined the ranks of important OES resources along with the "classics" (personnel, money, facilities and equipment), and must therefore be managed. The word "integrated" might conjure up images of a centralized, Big Brother approach to management (after all, we **are** in 1984), but this is not the idea here. The idea is to design the overall OES Information System so that its elements are linked together and can communicate with each other and with outside systems, to pass data. This seems straightforward and logical enough, and we might wonder why it was not always done that way. To make a long story short, let us say that technological constraints are one reason, and the fact that the value of information was not recognized from the start, is another.

The Strategy Paper prepared by DLES 5 staff in early 1984, provides the basic framework for the



implementation of this approach. The key concepts for this development are "integration", i.e., the use of a common vocabulary which will allow all our MISs to communicate, and "distribution", i.e., ensuring that data, software and hardware are available where they are required. The following diagram illustrates this, the blocks indicate existing (solid) or future (dotted) MIS, and the lines show the interface, or communication channels, as presently automated (solid) or manual (dotted).

The ultimate situation would of course be one where all of the systems are operational and all interfaces are automated. Therefore we have to make sure right now that we build the capability to do this in our systems as they are being developed.

## CONCLUSION

I hope I have been able to demonstrate that there is a lot going on in the area of ADP in DGLEM. Our aim is to provide each one of you with management tools which will actually make your life easier and will allow you to concentrate on getting the job done. We recognize the limitations of the present systems and are putting in place some tools of our own, such as the Strategy Paper, to help us achieve this aim. Your comments on the above subjects are not only welcome, they are invited. As the end users of these systems you not only know what your problems are, you probably know what some of the solutions might be. You can phone us (996-6445 or 992-2560), write us or come and see us, we will be glad to talk to you.



## BASE MAINTENANCE SECTION, CFB BORDEN SUGGESTION AWARD



Mr. George Stanley, machinist, receives a suggestion award of \$150.00 and a certificate from LCOL WD Pollard, BTSO.

Mr. Stanley developed a procedure which resolved a problem of replacing unserviceable wheels of the wheel and worm assembly, AVGP cougar traverse gear box, quickly and economically. WELL DONE, MR. STANLEY!

## AEROBIC EXCELLENCE



WO BH Cook, FCS TECH, Optronics Shop, receives an AEROBIC EXCELLENCE CERTIFICATE from LCOL. Pollard. The award represents Athletic Achievement in Accumulating 1920 KM RUNNING within a period of two years. WO Cook accomplished the 1920 KM within one year. CONGRATULATIONS!

## RETIREMENTS

1984 marks the retirement year for several members of Base Maint. MAJ WG (Bill) Leslie B Maint O retires after 36 years service. He was born in Toronto and joined the army as a craftsman in Jan 49. Postings included Korea, London, Kingston, Valcartier, Gagetown, The Middle East, Calgary, Chilliwack and Borden. He progressed through the ranks to S/SGT. until commissioned LT in

Aug 67. He was subsequently promoted to Capt in 1970 and to Maj in 1974.

Maj Leslie will reside in Angus, Ont. where he will be involved in community activities, and possible employment in the area as a Management/Safety Consultant. Leisure time will be spent fishing, boating, gardening and golfing. We

wish him GOOD HEALTH and HAPPINESS on his well deserved retirement.

WO AS (AL) Phillips, VEH TECH, retires in May, 1984, following over 26 years service. He was employed as Supervisor, "B" shop, (light vehicles). Over the years he served in many units, including Kingston, Calgary, 202 Workshop Depot, Gagetown, Cyprus and London. WO Phillips will re-locate in either Thunder Bay or London, Ont. and is planning a small business venture. A trip to Florida is in the offing, with curling in-between.

BEST WISHES for a long and successful retirement.

CPL Paul Dube, VEH TECH, Vehicle Servicing Section, retires after 29 years service. During this long service, CPL Dube was located in numerous units, including Cold Lake, Mont Apica, Montreal and Borden. He will reside in Angus, Ont. and take a long vacation with other travel. CPL Dube enjoys wood-working and gardening. We wish him well for many happy and healthy years ahead.

## ANNUAL EME CONFERENCE, CFB BORDEN, ONT. 16-17 MAY 1984



### FIRST ROW

CWO T.D. JONES  
LCOL DG PORTER  
COL RN FISCHER  
COL ID ISBESTER  
COL BL CODE  
COL RF POTTER  
COL E BECKING (US)  
COL (RETD) GW BRUCE  
BGEN JGR DOUCET  
COL MTA LORD (UK)  
COL MAC CAMPBELL  
COL JI HANSON  
COL LA LEFLAR  
MR. DV HAMPSON  
LCOL E GALEA  
CWO GL JOHNSON

### SECOND ROW

MAJ RJ PORRITT  
CWO JF MORGAN  
CWO L DOW  
CWO JE ROY

### SECOND ROW (CONT'D)

MAJ TJ PANKE  
LCOL KI ANDERSON  
LCOL JPA BRANCHAUD  
LCOL RL LANGDON  
LCOL KK MURATA  
MAJ DW CLARKE  
MAJ JLA BÉRUBÉ  
CAPT RA SHOSTAL  
LCOL RV POTTER  
MAJ AJ PICKFORD (UK)  
MAJ AB FULLER  
CAPT G THAYER (US)  
MAJ A MONTGIRAUD  
MAJ JG READE  
CWO JJ FOREST  
CWO PR WATTS  
CWO W DEVLIN  
CWO IS WELLS  
CAPT JE LAVOIE  
CAPT JD FOSTER  
CAPT WE SKITTERAL

### THIRD ROW

MAJ CM THOMPSON (UK)  
LCOL PA VLOSSAK  
LCOL WJ BREWER  
LCOL AR GILLIS  
MAJ NW JOHNSTONE  
LCOL WD ARMSTRONG  
MAJ WG LESLIE  
MAJ JP WILLIAMS  
MAJ LM MCCLAFFERTY  
LCOL A NELLESTYN  
MAJ BF JEFFERY  
MAJ WS TAIT  
LCOL JJR MARLEAU  
LCOL JAN NAULT  
CWO KG STEVENS  
LCOL J P DESCHENES  
CWO R SMITH  
CWO DG MCCULLY  
MWO R LANDRY  
CWO EG PAISLEY



## ANNUAL LEME CWO ADVISORY GROUP MEETING CFB BORDEN

14 May 1984

**FRONT ROW** — CWO "Andy" Forest, CWO "Lee" Faulkner, Col Hanson, CWO "Tom" Jones, CWO "Ron" Smith

**2nd ROW** — CWO "Lou" Dow, CWO "Punch" Wells, MWO "Ron" Landry, CWO "Ed" Paisley, CWO "Don" McCully, CWO "Ron" Clackett, CWO "Ron" Roy

**3rd ROW** — MWO "Serge" Leveillee, CWO "Andy" Levesque, CWO "Mike" Stevens, CWO "Rusty" Steele, CWO "Phil" Watts, CWO "John" Sweet, CWO "Bill" Devlin,

**4th ROW** — CWO "Art" Thompson, CWO "Jim" Morgan, CWO "Gordie" Johnson, MWO "Marcel" Gauthier, CWO "John" Tennant

## 1984 RCEME ASSOCIATION REUNION

by Lt T.M. McNutt

The Sixth Annual Reunion of the RCEME Associations was held 1-3 June 1984 at McNaughton Barracks, CFB Kingston. This year's return to Kingston, home of the RCEME, celebrated the 40th Anniversary of the Corps. Since the formation of the Association in 1979, the Reunion has received much enthusiasm and grown to an attendance of close to 1000 members and guests.

The weekend brought those associated with the Corps together to renew acquaintances, stir memories and rekindle friendships of past years. The Reunion commenced with a nostalgic Meet and Greet where former members reunited and emotions ran high. For some younger LEME members, it was an opportunity to meet many of the soldiers who made the history we, in our Branch, are so proud of. The evening was complete with photos, scrapbooks and memorabilia from the early years of the Corps as well as copies of Colonel Murray Johnston's recently published "Canada's Craftsmen".

Saturday brought the annual General Meeting and later a dinner and dance where past

President Warrant Officer (retired) Colin Cherry welcomed incoming President Captain Barney Freeman. Guest speaker Colonel Jim Hanson reminisced of life in the early years of RCEME and spoke of the growth of LEME.

The weekend culminated with a parade of members to the memorial service at the entrance gates to the old RCEME School, led by the Fort Henry Fife and Drum Band. The service, conducted by Major (retired) S.D. Self, included the laying of wreaths, for fallen comrades by the widow Mrs. Boles, and for serving members by parade marshal Mr. Colin Cherry. A March Past followed the service with Colonel Hanson and Mrs. Boles receiving the salute. After the parade was a RCEME "breakfast in the field", then the inevitable emotional farewells and the pledges to return to Kingston next year.

This year's Reunion was indeed a success and greatly enjoyed by the large number of participants. Be sure to share in the tradition of RCEME, June 1985, in Kingston.

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# ANNUAL MEETING OF LAND ORDNANCE ENGINEERING OFFICERS

## QUEBEC REGION

By Captain Gilles Brière — 5 Cdn Serv Bn

On October 28, 1983, our official delegation of Valcartier Land Ordnance Engineering Officers met at the 202 Workshop Depot of CFB Montreal with colleagues of that classification from the entire Quebec region. The following units were represented: 202 Workshop Depot, CFB Montreal; FMC HQ; CFB St. Jean; LETE (Orleans) and CFB Valcartier.

The meeting was the first of its type within the framework of ALFIE (Annual LORE Fellowship Inter-unit Exercise). It will be repeated in future years in other areas of Quebec where there are officers of that classification. In this way, the program will allow everyone to make contacts and familiarize themselves with the work of their colleagues.

Our hosts had organized an excellent program of activities. First of all, we met at the Longue-Pointe Officers' Mess around 1100 hours. After shaking hands all around, we had a hearty

lunch and then headed for the 202 Workshop Depot to be greeted by the Commanding Officer, Colonel Leflar. He gave us an overview of the activities and projects underway in his 3rd echelon workshop, followed by a guided tour of the premises. After the tour, we returned to the Mess where we got better acquainted by exchanging war stories and discussing the upcoming transfers and promotions.

All this was followed by a dinner and a friendly "Olympic" sport competition (cribbage, darts, cards, horse racing and marksmanship).

There was obviously no competition since our Valcartier Region team was far too strong for the others and we won the trophy hands down. But seriously, it was an excellent opportunity to meet and strengthen the family spirit. Many thanks to our hosts at the 202 Workshop Depot for their wonderful hospitality.

# WHO'S WHERE?

## LEME OFFICERS, OFFICER CADETS, CWOs, MWOs, AND WOs

(Prepared as of June, 1984)

### BRIGADIER-GENERAL

DOUCET	JGR	NDHQ/DGLEM/QGDN/DGGTM
SCREATON	RB	NDHQ/DGMAP/QGDN/DPMAP

### COLONELS

BOUCHER	JA	NDHQ/DSVEM/QGDN/DVSGM
BYER	HD	NDHQ/DGLEM/AAP/QGDN/DGGTM
CAMPBELL	MAC	NDHQ/DLES/QGDN/DSGT
CODE	BL	NDHQ/DLAEEM/QGDN/DAEGTM
FISCHER	RN	NDHQ/MLVW/QGDN/VLMR
HANSON	JI	CFSAOE/EGAMFC (CMDT) CFB/BFC BORDEN
ISBESTER	ID	NDHQ/DEMPS/QGDN/DPNGM
LEFLAR	LA	202 WD/DA MONTREAL (CO)
MCEACHERN	AL	NDHQ/DCMEM/QGDN/DMTGM
PERGAT	V	FMC HQ/QG ST-HUBERT

### LIEUTENANT-COLONELS

ANDERSON	KI	NDHQ/DGDP/QGDN/DGPD	BULMER	FR	CFB/BFC HALIFAX
ARMSTRONG	WD	NDHQ/DLAEEM/QGDN/DAEGTM	CLARKE	DW	NDHQ/CPCSA/QGDN/CCNS
BRANCHAUD	JPA	NDHQ/D LOG OPS/QGDN/DO LOG	COLLINGE	PG	NDHQ/DCMEM/QGDN/DMTGM
BREWER	WJ	CFB/BFC LAHR	COULOMBE	JAR	CFB/BFC VALCARTIER
BRITT	RP	NDHQ/DSVEM/QGDN/DVSGM	DANAHY	RF	CFB/BFC TRENTON
BROWN	BP	NDHQ/DLAEEM/QGDN/DAEGTM	DAWSON	WJ	NDHQ/DLES/QGDN/DSGT
CROOKSTON	JG	CFCSC TORONTO	DESROCHERS	JAMC	202 WD/DA MONTREAL
DAGENAIS	JPJP	CFLS CFB/BFC ST-JEAN	DUFOUR	JG	CFCSC TORONTO
DESCHENES	JP	AIRCOM HQ/CA WINNIPEG	DUNSMORE	JD	CFB/BFC CHILLIWACK
GALEA	E	NDHQ/DSVEM/QGDN/DVSGM	DUPONT	JCG	NDHQ/DLAEEM/QGDN/DAEGTM
GILLIS	AR	NDHQ/DLES/QGDN/DSGT	EIF	L	CFB/BFC TORONTO
HLOHOVSKY	FA	NDHQ/DCGEM/QGDN/DFGM	FILLION	JAC	5 <sup>e</sup> BN S DU C VALCARTIER
HYTTENRAUCH	LW	NDHQ/DCMEM/QGDN/DMTGM	FORGET	JFJ	FMC HQ/QG ST-HUBERT
LAMARRE	BG	NDHQ/PM LLAD/QGDN/AP DABA	FORGET	JDJP	CDLS WASHINGTON
LANGDON	RL	NDHQ/DLAEEM/QGDN/DAEGTM	FOURNY	JP	NDHQ/DAME/QGDN/DMMMG
LOWTHIAN	JW	NDHQ/DISP/QGDN/DPSI	GERMAIN	JMR	CMR BFC ST-JEAN
MARLEAU	JJR	5 <sup>e</sup> BN S DU C VALCARTIER	GILLESPIE	RA	EX DUTY EUROPE
MURATA	KK	LETE/CETT (CO) ORLEANS	GIROUX	JAJC	NDHQ/DLES/QGDN/DSGT
NAPPERT	JGG	NDHQ/SARP/QGDN/PRAP	GLADU	JLJM	CFB/BFC LAHR
NAULT	JAN	CFSAOE/EGAMFC BORDEN	GLAUS	JV	NDHQ/DCMEM/QGDN/DMTGM
NELLESTYN	A	NDHQ/DDSS/QGDN/DVDS	GUERETTE	AF	NDHQ/DCMEM/QGDN/DMTGM
NORTH	PJ	NDHQ/DGMAP/QGDN/DPMAP	HAMEL	JCJP	LETE/CETT ORLEANS
PARSONS	FG	NDHQ/DLES/QGDN/DSGT	HAMILTON	JLS	NDHQ/SARP/QGDN/PRAP
PERRIN	DB	NDHQ/DGMAP/QGDN/DPMAP	HARDY	DR	RMC KINGSTON
POSPISIL	PP	CDN DEL. NORTH ATLANTIC COUNCIL BRUSSELS	HELLEMANS	JHD	CFB/BFC MONTREAL
POTTER	RV	NDHQ/CRAD/QGDN/CR DEV	HERBERT	LL	CFSAOE/EGAMFC BORDEN
RAY	HG	NDHQ/DCMEM/QGDN/DMTGM	HIGUCHI	RD	NDHQ/SARP/QGDN/PRAP
ST-LAURENT	JAY	202 WD/DA MONTREAL	HOLT	HT	CFB/BFC LONDON
VINCENT	RJ	CFB/BFC BORDEN	HOUSKEN	PJ	CFCSC TORONTO
VLOSSAK	PA	NDHQ/DLES/QGDN/DSGT	HUTCHINS	E	SSF HQ & SIG SQN CFB/BFC PETAWAWA
WALSH	GA	FMC HQ/QG ST-HUBERT	JEFFERY	JE	2 SVC BN CFB/BFC PETAWAWA
WILLIAMS	JP	NDHQ/DGLEM/AAP/QGDN/DGGTM	JOHNSTONE	BF	MARCOM HQ/QG COMAR HALIFAX
			KATYNSKI	NW	NDHQ/LLAD/QGDN/DABA
			KEAYS	SS	4 SVC BN LAHR
			KERR	GW	NDHQ/CRAD/QGDN/CR DEV
			KIRKLAND	PD	NDHQ/LLAD/QGDN/DABA
			KNIGHT	KW	CFB/BFC WINNIPEG
			KOELLER	DC	NDHQ/DSTI/QGDN/DRST
			KRZAN	GJ	NDHQ/PMO/MOST/QGDN
			LAFFRADI	CJ	NDHQ/DGLEM/AAP/QGDN/DGGTM
			LANGLOIS	DW	EX DUTY UK
			LEE	JAG	HQ CFE/QG LAHR
			LINDSAY	KE	FMC HQ/QG ST-HUBERT
			LYDON	JG	CFCSC TORONTO
			MAGUIRE	TF	CFSAOE/EGAMFC BORDEN
			MASSICOTTE	GE	LETE/CETT ORLEANS
			MCCLAFFERTY	JZG	NDHQ/MLVW/QGDN/VLMR
			MCDONALD	LM	CFTS HQ/QG SIFC TRENTON
			MCLEAN	JA	EX DUTY USA
			MCLEOD	BA	NDHQ/DSVEM/QGDN/DVSGM
			MONTGIRAUD	RA	CFB/BFC GAGETOWN
			MORGAN	AG	NDHQ/DLES/QGDN/DSGT/ SO/LEME
			MORRISON	TW	NDHQ/DCMEM/QGDN/DMTGM
			PANKE	JE	CFB/BFC GAGETOWN
			PARKER	TJ	CFLO ESTB WASHINGTON
			PEDNEAULT	DB	CFB/BFC LONDON
			PETERSON	JGMY	CFTS HQ/QG SIFC TRENTON
			PHILLIPS	RA	CFB/BFC KINGSTON
			PIGEON	LJ	NDHQ/DLES/QGDN/DSGT
			POOLE	JJM	GM (DD) DET LONDON
				SR	NDHQ/CEM/QGDN/CGM

### MAJORS

AUBIN	JP	202 WD/DA MONTREAL
AUSTIN	NE	CFB/BFC CHILLIWACK
BAIRD	KD	NDHQ/DLAEEM/QGDN/DAEGTM
BERUBE	JMP	CFAD ANGUS BORDEN
BERUBE	JLA	CFLO ESTB WASHINGTON
BESELT	EK	4 SVC BN LAHR
BINGHAM	GT	202 WD/DA MONTREAL

PORRITT	RJ	CFSAOE/EGAMFC BORDEN	GALLIN	EA	202 WD/DA MONTREAL
POTHIER	PG	NDHQ/DLAEEM/QGDN/DAEGTM	GAYTON	WM	LETE/CETT ORLEANS
POTTER	CF	NDHQ/DCDS/QGDN/SCED	GIGUERE	JCM	4 SVC BN LAHR
PRICE	AW	CFB/BFC EDMONTON	GODSON	GW	NDHQ/DLAEEM/QGDN/DAEGTM
READ	PO	NDHQ/DCMEM/QGDN/DMTGM	GRANT	WG	RSS ATLANTIC DET. SYDNEY
READE	JG	CFB/BFC BORDEN	GREFFORD	JG	DREV/CRDV VALCARTIER
REICH	RHJ	2 SVC BN PETAWAWA	GRONDIN	JJM	4 SVC BN LAHR
RONDEAU	JRMA	NDHQ/DLES/QGDN/DSGT	GUERTIN	JAR	NDHQ/DSVEM/QGDN/DVSGM
ROY	JGHL	CFB/BFC MONTREAL	HARRIS	MB	NDHQ/PMO LLAD/QGDN/AP DABA
SIROIS	JES	CF TECH S ST-JEAN	HARRISON	DE	CFB/BFC BADEN
SMITH	RD	CFB/BFC OTTAWA	HARTWICK	DR	NDHQ/DCGEM/QGDN/DFGM
SOCHASKY	RC	1 SVC BN CALGARY	HEBERT	JCM	LETE/CETT ORLEANS
ST-AUBIN	RG	1 SVC BN CALGARY	HONOUR	TW	2 RCR CFB/BFC GAGETOWN
STEEL	LTD	CFLS OTTAWA	HORTON	KG	CDLS WASHINGTON
STEPHANSON	GW	BTD PROJ OTTAWA	HOWARD	AB	CDLS LONDON
STEWART	RH	CDLS LONDON ENG	JACKSON	DM	2 RCHA PETAWAWA
TAIT	WS	CFCSC TORONTO	JAMES	NE	NDHQ/DSVEM/QGDN/DVSGM
THIBAULT	JJ	RMC KINGSTON	JEAN	KGW	NDHQ/DLAEEM/QGDN/DAEGTM
TILLER	DT	FMC HQ/QG ST-HUBERT	GERONIMUS	CJ	CFB/BFC ESQUIMALT
TREVORS	KM	NDHQ/DSVEM/QGDN/DVSGM	JESTIN	KR	4 SVC BN LAHR
WATTS	JK	NDHQ/DLES/QGDN/DSGT	JOHNSON	RLR	CFSAOE/EGAMFC BORDEN
YOUNGS	JWF	NDHQ/DGLEM/AAP/QGDN/DGGTM	JONES	KE	CFSAOE/EGAMFC BORDEN
<b>CAPTAINS</b>					
ALLAN	RB	LETE/CETT ORLEANS	KELLY	BE	CFB/BFC GAGETOWN
ALLEN	WR	2 SVC BN PETAWAWA	KELLY	RG	CFB/BFC ESQUIMALT
AMES	SA	LAV AUGMT LONDON	KENNELLY	KR	RCD LAHR
AUGUSTON	AC	CFB/BFC WINNIPEG	KIMMERER	OC	CFB/BFC TORONTO
BARNARD	KJ	NDHQ/DGLEM/AAP/QGDN/DGGTM	KOBYLANSKY	OZ	CFB/BFC LAHR
BARNETT	RB	NDHQ/DCGEM/QGDN/DFGM	KOETHE	PJ	NDHQ/DGQA/QGDN/DGAQ
BARTEAUX	BB	NDHQ/DCEM/QGDN/DMTGM	LAJOIE	JHEM	4 SVC BN LAHR
BLAKEKNOX	DC	NDHQ/DCMEM/QGDN/DMTGM	LAPORTE	JRYC	CMR ST-JEAN
BOISVERT	JVJD	CDLS LONDON ENG	LAVOIE	JEG	CFSAOE/EGAMFC BORDEN
BOUTILIER	RA	RMC KINGSTON	LAWRENCE	JC	AIRCOM HQ/QG CA WINNIPEG
BOWLER	RA	NDHQ/DLAEEM/QGDN/DAEGTM	LAWRENCE	JK	NDHQ/DLAEEM/QGDN/DAEGTM
BRADLEY	NR	4 CER LAHR	LECLERC	JCM	NDHQ/DLAEEM/QGDN/DAEGTM
BREEZE	KA	202 WD/DA MONTREAL	LEMIEUX	JJR	CFB/BFC OTTAWA
BRIERE	JGDF	5 <sup>e</sup> BN S DU C VALCARTIER	LETOURNEAU	DAF	NDHQ/DGLEM/MILPAC/QGDN/DGGTM
BRIGGS	BJ	NDHQ/DGLEM/AAP/QGDN/DGGTM	LONG	BG	CFB/BFC LONDON
BRYSON	GD	2 SVC BN PETAWAWA	LOW	WA	CFB/BFC SHILO
CANTIN	JGB	NDHQ/DLES/QGDN/DSGT	LUGG	AG	NDHQ/DCMEM/QGDN/DMTGM
CARRIER	JGD	3 R22 <sup>e</sup> R VALCARTIER	MACCANNELL	WN	LDSH(RC) CALGARY
CHAPPELL	EA	BFC ST-JEAN	MACDONALD	BE	NDHQ/DLES/QGDN/DSGT
CHEQUER	T	CFSAOE/EGAMFC BORDEN	MACLEAN	DT	NDHQ/DLES/QGDN/DSGT
CLARKE	FG	NDHQ/DLAEEM/QGDN/DAEGTM	MACPHAIL	RG	2 SVC BN PETAWAWA
CLIFTON	WC	CFSAOE/EGAMFC BORDEN	MADER	GE	202 WD/DA MONTREAL
CLOUTIER	JRD	FMC HQ/QG ST-HUBERT	MARCIL	JN	CFB/BFC MONTREAL
COLLINGS	JW	NDHQ/DLES/QGDN/DSGT	MARCUS	DB	RSS ATLANTIC DET SAINT JOHN
COOPER	JT	NDHQ/DLES/QGDN/DSGT	MARSHALL	TA	3 PPCLI ESQUIMALT
COULOMBE	JDR	UNIVERSITE LAVAL QUEBEC	MARTEL	JJRD	12 RBC VALCARTIER
CRAWFORD	JD	CFSAOE/EGAMFC BORDEN	MCCLELLAND	GG	CFE HQ/QG LAHR
CRIPPS	JB	RSS (CENTRAL) LONDON	MCCULLOCH	NJS	NDHQ/SARP/QGDN/PRAP
CROSSMAN	RM	RSS (ATLANTIC) HALIFAX	MCLAREN	AG	NDHQ/DEMPS/QGDN/DPNGM
CURLEY	IJ	4 SVC BN LAHR	MCLEAN	CD	CFB/BFC GAGETOWN
DALLAIRE	JA	5 <sup>e</sup> BN S DU C VALCARTIER	MCNAUGHTON	RP	LAKEHEAD UNIVERSITY
DAVIDSON	DS	CDLS WASHINGTON	MCNEIL	GP	4 SVC BN LAHR
DESJARDINS	JGR	NDHQ/DLAEEM/QGDN/DAEGTM	MCNUTT	SA	1 CDN SIGS REGT KINGSTON
DOKE	RG	NDHQ/DSVEM/QGDN/DVSGM	MERRY	DM	4 SVC BN LAHR
DONESLEY	RWG	CFE HQ/QG LAHR	MILLER	AR	CFB/BFC HALIFAX
DONOVAN	CT	EX DUTY EUROPE	MILLER	KL	RMC KINGSTON
DOUCETTE	WJ	CFB/BFC BORDEN	MOGRIDGE	MD	AB SVC CDO PETAWAWA
DUBE	JG	MLV(W) AUGMT VALCOURT	MORDEN	SD	NDHQ/DCGEM/QGDN/DFGM
DUBE	JR	FMC HQ/QG ST-HUBERT	MORE	MJ	NDHQ/DLES/QGDN/DSGT
EMMERTON	GRC	CFB/BFC COLD LAKE	MYERS	GT	CFB/BFC CHILLIWACK
ENG	JSF	1 SVC BN CALGARY	NEIL	GR	CFB/BFC CALGARY
FACEY	LA	2 SVC BN PETAWAWA	NEVILLE		WAINWRIGHT DET.
FAULKNER	KE	1 PPCLI CALGARY	NOLMAN	AJ	202 WD/DA MONTREAL
FILIPPS	KH	CFB/BFC SHEARWATER	OUELLET	PC	CFSAOE/EGAMFC BORDEN
FOSTER	JD	CFSAOE/EGAMFC BORDEN	PATTERSON	JC	2 R22 <sup>e</sup> R QUEBEC
FRASER	JGCG	5 <sup>e</sup> BN S DU C VALCARTIER	PERRIER	GW	SARP AUGMT KITCHENER
FREEMAN	JI	CFB/BFC KINGSTON	PETITCLERC	LO	NDHQ/DCMEM/QGDN/DMTGM
				PH	CF TECH S ST-JEAN

POIRIER	JD	3 RCHA CFB/BFC SHILO
POULTER	IC	2 PPCLI LAHR
REDMAN	DN	CDLS WASHINGTON
REGUSH	MM	1 RCR CFB/BFC LONDON
ROBERGE	JJG	FMC HQ/QG ST-HUBERT
ROBILLARD	FA	1 SVC BN CALGARY
ROSADIUK	FJ	CFB/BFC EDMONTON
ROSS	GW	NDHQ/DCMEM/QGDN/DMTGM
ROXIN	JM	CFSAOE/EGAMFC BORDEN
RUTHVEN	AF	NDHQ/DSVEM/QGDN/DVSGM
SANDERSON	DF	AIRCOM HQ/QG CA WINNIPEG
SAUNDERS	RE	CFSAOE/EGAMFC BORDEN
SHAWCROSS	CBA	NDHQ/DLAEEM/QGDN/DAEGTM
SHORTELL	EJ	CFB/BFC GREENWOOD
SHOSTAL	RA	NDHQ/CPCSA/QGDN/CCNS
SIROIS	MAL	CDLS LONDON ENG.
SKITTERAL	WE	NDHQ/DLES/QGDN/DSGT
SOMERVILLE	JF	CFB/BFC GAGETOWN
SOULLIERE	PM	NDHQ/DLAEEM/QGDN/DAEGTM
SPRINGER	MJ	FMC HQ/QG ST-HUBERT
STRIETHORST	BJ	LETE/CETT ORLEANS
STRONGMAN	AR	CFTS HQ/QG SFC TRENTON
SWITZER	RO	NDHQ/DLES/QGDN/DSGT
TERHART	BA	2 RCHA CFB/BFC PETAWAWA
THIBERT	JA	1 R22FR LAHR
THORP	CJ	NDHQ/DLAEEM/QGDN/DAEGTM
THURROTT	AK	CFB/BFC MOOSE JAW
TOUSSAINT	JLD	5e BN S DU C VALCARTIER
TRAMER	CR	SSF HQ & SIG SQN PETAWAWA
TREMBLAY	JPR	5 RALC BFC VALCARTIER
TURBIDE	JED	CFSAOE/EGAMFC BORDEN
TURINGIA	MP	3 RCR WINNIPEG
TURMEL	JCD	5e BN S DU C VALCARTIER
TURMEL	JRH	CDLS WASHINGTON
VEZINA	JCH	NDHQ/DSVEM/QGDN/DVSGM
WATTS	EA	CFB/BFC TRENTON
WELLMER	HH	RSS PRAIRIE DET. EDMONTON
WETZEL	KR	RMC KINGSTON
WILLIAMS	CAM	NDHQ/DLES/QGDN/DSGT
WILSON	BG	NDHQ/DSVEM/QGDN/DVSGM
WINGERT	DL	1 SVC BN CALGARY
WYVILLE	RD	4 CMBG HQ & SIG SQN LAHR
YEE	WJ	1 RCHA LAHR

#### LIEUTENANTS

ASHTON	CW	LETE/CETT ORLEANS
BATES	PG	CFB/BFC OTTAWA
BEAUDOIN	JDJ	5e BN S DU C VALCARTIER
BONNEY	GJ	8 CH CFB/BFC PETAWAWA
BOYCE	RG	CFB/BFC GAGETOWN
COOK	DG	CFB/BFC SHILO
DABSKI	JW	CFB/BFC GAGETOWN
DEANO	AP	CFSAOE/EGAMFC BORDEN
DUBE	P	2 SVC BN PETAWAWA
ELVISH	RA	CFB/BFC TORONTO
FLEMING	WJ	2 SVC BN PETAWAWA
FRASER	JA	CFB/BFC GAGETOWN
FROST	CS	202 WD/DA MONTREAL
GUILBAULT	JLJM	202 WD/DA MONTREAL
HALL	AG	1 SVC BN CALGARY
HUTCHISON	JGM	LETE/CETT ORLEANS
LAMBERT	PJP	CFB/BFC BORDEN
LAVIOLETTE	PJ	1 SVC BN CALGARY
LEE	PJ	CFB/BFC TORONTO
LEVESQUE	HG	5e BN S DU C VALCARTIER
LYNG	RP	CFB/BFC LONDON
MACLEOD	JD	CFB/BFC GAGETOWN
MARINOFF	GS	4 SVC BN LAHR
MCDERMOTT	DR	CFSAOE/EGAMFC BORDEN
MCNUTT	TM	CFB/BFC KINGSTON
MOORE	BPA	CFB/BFC WINNIPEG

MUIR	DS	1 SVC BN CALGARY
MUIR	JP	202 WD/DA MONTREAL
MUMFORD	NC	4 SVC BN LAHR
OHRT	PA	CFB/BFC MONTREAL
PALMER	JD	2 SVC BN PETAWAWA
PETITPAS	JJD	5e BN S DU C VALCARTIER
PLANTE	JRP	5e BN S DU C VALCARTIER
PYPER	DJ	CFB/BFC EDMONTON
TEMPLE	TJ	4 SVC BN LAHR
THIBEAULT	MNR	CFB/BFC MONTREAL
WONG	RL	1 SVC BN CALGARY
WU	AWD	CFB/BFC BORDEN
YAWORSKI	TX	4 SVC BN LAHR

#### SECOND LIEUTENANTS

CARIGNAN	JHPS	CFSAOE/EGAMFC BORDEN
CYR	JRD	CFSAOE/EGAMFC BORDEN
ESPENANT	LM	CFSAOE/EGAMFC BORDEN
GOSELIN	DJ	CFSAOE/EGAMFC BORDEN
GOUDREAU	JEA	CFSAOE/EGAMFC BORDEN
GROSS	CJ	CFSAOE/EGAMFC BORDEN
GUPTA	A	CFSAOE/EGAMFC BORDEN
HECTOR	DA	CFSAOE/EGAMFC BORDEN
HICKS	JN	CFSAOE/EGAMFC BORDEN
LARAMEE	JPJY	CFSAOE/EGAMFC BORDEN
LEBLANC	JGJ	CFSAOE/EGAMFC BORDEN
LEE	MWK	CFSAOE/EGAMFC BORDEN
MAWSON	MAR	CFSAOE/EGAMFC BORDEN
MCGEE	BP	CFSAOE/EGAMFC BORDEN
MOORE	K	CFSAOE/EGAMFC BORDEN
OWEN	CC	CFSAOE/EGAMFC BORDEN
PAGEAU	JAD	CFSAOE/EGAMFC BORDEN
PAGEAU	JMR	CFSAOE/EGAMFC BORDEN
PATCH	AC	CFSAOE/EGAMFC BORDEN
PREVOST	JGJF	CFSAOE/EGAMFC BORDEN
REEVES	RJ	CFSAOE/EGAMFC BORDEN
SANTANA	HAAD	CFSAOE/EGAMFC BORDEN
SAULNIER	JEG	CFSAOE/EGAMFC BORDEN
SCHAAFSMA	AH	CFSAOE/EGAMFC BORDEN
TOUGAS	JGM	CFSAOE/EGAMFC BORDEN
TOURANGEAU	JJNF	CFSAOE/EGAMFC BORDEN
TURGEON	JYL	CFSAOE/EGAMFC BORDEN
VASSBOTN	GT	CFSAOE/EGAMFC BORDEN
WARNER	JW	CFSAOE/EGAMFC BORDEN
WASS	ACH	CFSAOE/EGAMFC BORDEN
WIGG	SL	CFSAOE/EGAMFC BORDEN
OCDT/ELOF		
ANDREWS	HC	RMC KINGSTON
BARBE	MM	CMR ST-JEAN
BEAUCHEMIN	JM	RMC KINGSTON
BEAULIEU	JGA	CMR ST-JEAN
BERGERON	JBGJ	RMC KINGSTON
BERTRAND	JSRD	RMC KINGSTON
BIMM	ML	RMC KINGSTON
BISSONNETTE	CMAJ	RMC KINGSTON
BROOKS	RA	RRMC VICTORIA
CANTIN	JJB	UNIVERSITE LAVAL QUEBEC
CARON	JJD	RMC KINGSTON
CARRIER	JY	RMC KINGSTON
CLOUTIER	JMG	CMR ST-JEAN
COTE	JWJR	UNIV DE MONTREAL MONTREAL
CROWE	GA	RMC KINGSTON
DAVIS	TJ	CMR ST-JEAN
DUPUIS	JPD	RMC KINGSTON
EDWARDS	IM	CFOCS CHILLIWACK
FITZGERALD	MD	RMC KINGSTON
FORT	LA	CFOCS CHILLIWACK
GIRARD	JFP	RMC KINGSTON
HAAPALAINEN	MJ	CFOCS CHILLIWACK
HERSEY	JD	RMC KINGSTON

HORNE	SK	ST MARY'S UNIV HALIFAX	CWO/ADJUC 421	BAILEY	ET	NDHQ/DLAEEM/QGDN/DAEGTM
HUDSON	JA	CMR ST-JEAN		BESWICK	P	CFB/BFC GAGETOWN
KENNEDY	SG	CARLETON UNIV OTTAWA		BLANCHARD	JM	202 WD/DA MONTREAL
LAROCHELLE	IS	CMR ST-JEAN		HOBBINS	PB	NDHQ/DLAEEM/QGDN/DAEGTM
LATULIPPE	JRM	CMR ST-JEAN		JOLLINEAU	JM	NDHQ/SARP/QGDN/PRAP
LAVIOLETTE	MA	RMC KINGSTON		NOLAND	KG	NDHQ/CPCSA/QGDN/CCNS
LEMIUX	PF	RMC KINGSTON		STEVENS	HM	LEOP TK AUGMT OTTAWA
LINCOURT	JRD	RMC KINGSTON		SWEET	JC	NDHQ/CPCSA/QGDN/CCNS
LITJENS	JHM	CMR ST-JEAN		TIBBITS	HA	NDHQ/DLAEEM/QGDN/DAEGTM
LYONS	JSF	UNIV. OF WESTERN ONT. LONDON				
MACLEAN	HD	RMC KINGSTON	CWO/ADJUC 435			
MERCER	DEW	CMR ST-JEAN		DEVLIN	W	CFB/BFC SHILO
MOORE	CA	RMC KINGSTON		FAULKNER	EM	CFTS HQ/QG SIFC TRENTON
MUELLER	CH	RRMC VICTORIA		FOREST	JJRA	202 WD/DA MONTREAL
MYERS	SP	RRMC VICTORIA		LEY	GB	NDHQ/DLAEEM/QGDN/DAEGTM
NEWHEY	JE	CMR ST-JEAN		PAISLEY	EG	NDHQ/CPCSA/QGDN/CCNS
PARKER	CK	LAURENTIAN UNIV. SUDBURY		PETTIGREW	HC	CFB/BFC WINNIPEG
PROVENCHER	JMR	RMC KINGSTON		STEELE	RW	CFSAOE/EGAMFC BORDEN
RABADI	NP	RMC KINGSTON		WATTS	PR	NDHQ/DLAEEM/QGDN/DAEGTM
RITCHIE	K	RMC KINGSTON				
RIVERIN	JBVF	RMC KINGSTON	MWO/ADJUM 411			
SARDANA	N	RMC KINGSTON		ALGER	RL	CFSAOE/EGAMFC BORDEN
SCHRADER	CF	QUEEN'S UNIV. KINGSTON		BALL	RJ	R SVC BN LAHR
SCUKA	DG	RMC KINGSTON		BEAUCHAMP	R	NDHQ/DSVEM/QGDN/DVSGM
SMITH	RM	UNIV. OF NEW BRUNSWICK SYDNEY		BEAULIEU	JHR	12 RBC BFC VALCARTIER
SOOLEY	TE	CMR ST-JEAN		BERARD	JAC	202 WD/DA MONTREAL
SPRINGFORD	LPD	RMC KINGSTON		BERGERON	JG	5 <sup>e</sup> BN S DU C VALCARTIER
STOTT	IG	ACADIA UNIV. WOLFVILLE		BIZIER	JPE	MOST AUGMT OTTAWA
ST-PIERRE	JME	RMC KINGSTON		BOND	PW	4 CER LAHR
VALLERAND	JBGF	UNIV. OF OTTAWA OTTAWA		BOUCHARD	JRN	CFB/BFC BAGOTVILLE
WEAVER	JT	RMC KINGSTON		BOWEN	WD	CFSAOE/EGAMFC BORDEN
WEBB	JE	RMC KINGSTON		BRETON	JG	MLV(W) AUGMT OTTAWA
WILLIOT	PRM	RMC KINGSTON		BRIDEAU	JG	4 SVC BN LAHR
WUBBOLTS	HPC	CMR ST-JEAN		BROWN	BR	1 RCR CFB/BFC LONDON
				BROWN	MA	CFB/BFC GREENWOOD
CWO/ADJUC 411				BURDEN	LJJ	CFB/BFC TORONTO
ALLEN	DN	NDHQ/DSVEM/QGDN/DVSGM		CAMERON	IE	CFB/BFC OTTAWA
BURRY	RL	MOST AUGMT OTTAWA		CATHCART	AJ	CFB/BFC SUMMERSIDE
BUTEAU	JR	5 RALC VALCARTIER		CLICHE	JJM	4 CMBG HQ & SIG SQN LAHR
CONRAD	LW	CFB/BFC HALIFAX		CLOUTIER	JMJ	NDHQ/CPCSA/QGDN/CCNS
DOW	CL	NDHQ/DCMEM/QGDN/DMTGM		COLBURN	RB	8 CH CFB/BFC PETAWAWA
EGGLEFIELD	JJY	FMC HQ/QG ST-HUBERT		COMEAU	JR	CF TECH S BFC ST-JEAN
GAMACHE	JG	202 WD/DA MONTREAL		COTE	JE	CFB/BFC BAGOTVILLE
GINN	WH	4 SVC BN LAHR		CUMMINGS	SE	NDHQ/DCMEM/QGDN/DMTGM
GOUNDRY	WO	NDHQ/DCMEM/QGDN/DMTGM		DAVIES	DG	CFB/BFC BADEN
HOCKIN	RR	CFB/BFC LONDON		DEHAAS	L	1 CER CFB/BFC CHILLIWACK
JOHNSON	GL	1 SVC BN CALGARY		DELISLE	JAR	1 R22 <sup>e</sup> R CFB/BFC LAHR
JONES	TD	NDHQ/DLES/QGDN/DSGT (BRANCH CWO)		DICKIE	HM	AB SVC CDO PETAWAWA
JULIEN	JC	CFB/BFC MONTREAL		DICKSON	MC	3 PPCLI CFB ESQUIMALT
LABRIE	JLG	NDHQ/DSVEM/QGDN/DVSGM		DIGNARD	JA	MLV (W) AUGMT OTTAWA
LALIBERTE	JOE	202 WD/DA MONTREAL		DIONNE	JREM	CF TECH S BFC ST-JEAN
LEVESQUE	JAL	NDHQ/CPCSA/QGDN/CCNS		DOIRON	JL	CFB/BFC CHATHAM
MAIER	JM	MARCOM MCSU(P) ESQUIMALT		EWING	EW	NDHQ/DSVEM/QGDN/DVSGM
MATACHESKIE	KS	NDHQ/DLES/QGDN/DSGT (BSAMMS)		FARDY	WP	4 SVC BN LAHR
MCCULLY	DG	LETE/CETT ORLEANS		FAULKNER	EM	CFE HQ/QG LAHR
MEUNIER	JR	5 <sup>e</sup> BN S DU C VALCARTIER		FORTIER	JC	CFB/BFC MONTREAL
MORGAN	JF	MARCOM HQ/QG COMAR HALIFAX		FRASER	RD	AB SVC CDO PETAWAWA
ORR	PL	CFB/BFC BORDEN		GAGNON	LG	5 <sup>e</sup> BN S DU C VALCARTIER
PANKEW	W	CFB/BFC CHILLIWACK		GAUTHIER	JJEM	CFTS HQ/QG SIFC TRENTON
POYTRESS	SN	NDHQ/CPCSA/QGDN/CCNS		GERMAIN	JNY	202 WD/DA MONTREAL
RADIES	AJ	CFB/BFC TORONTO		GILLIS	GE	202 WD/DA MONTREAL
ROENSPiESS	RJ	RCD LAHR		GRAYBILL	FM	CFB/BFC CALGARY WAINWRIGHT DET.
ROY	JEYR	2 SVC BN PETAWAWA		HACHE	JP	CFB/BFC LONDON
SLOAN	JC	CFB/BFC OTTAWA		HANLON	GE	CFB/BFC ESQUIMALT
SMITH	R	CFB/BFC GAGETOWN		HARRIS	JE	301 CFTSD WATERLOO
TENNANT	JL	LETE/CETT ORLEANS		HOGG	TD	1 PPCLI CFB CALGARY
THOMPSON	AC	CFSAOE/EGAMFC BORDEN		HURGETT	DG	1 SVC BN CFB CALGARY
TOOGOOD	RB	CFB/BFC EDMONTON		JENNINGS	RW	3 RCR CFB/BFC BADEN
WELLS	IS	AIRCOM HQ/QG CA WINNIPEG		LAIDLAW	LA	LDSH (RC) CALGARY

LAMEY	DA	CFB/BFC GAGETOWN	LIPSKIE	RF	CFSAOE/EGAMFC BORDEN
LANGE	L	2 RCHA CFB PETAWAWA	MACKENZIE	JF	2 SVC BN PETAWAWA
LAPERIERRE	JLJ	2 R22 <sup>e</sup> R QUEBEC	MACKENZIE	WJ	NDHQ/DCGEM/QGDN/DFGM
LEBLANC	ER	5 <sup>e</sup> BN S DU C VALCARTIER	MULROONEY	TA	202 WD/DA MONTREAL
LECLERC	JPR	RCD LAHR	MURPHY	DJ	CFB/BFC GAGETOWN
LEFEBVRE	RL	2 SVC BN PETAWAWA	POTTER	KG	NDHQ/DSVEM/QGDN/DVSGM
LEVEILLEE	JMMS	4 SVC BN LAHR	PRATT	RE	CFB/BFC CHILLIWACK
LOGAN	LF	3 PPCLI ESQUIMALT	ROBINSON	GL	AIRCOM HQ/QG CA WINNIPEG
LOGAN	PG	CFB/BFC KINGSTON	SPENCE	GR	202 WD/DA MONTREAL
LUSSIER	PE	CFB/BFC NORTH BAY	STADLER	S	NDHQ/DLAEEM/QGDN/DAEGTM
MACKAY	JA	CFB/BFC SHILO			
MACKINNON	GS	SSF HQ & SIG SQN CFB/BFC PETAWAWA	<b>MWO/ADJUM 435</b>		
MADDEN	BJ	CFB/BFC TORONTO	CHARRON	RG	NDHQ/DLAEEM/QGDN/DAEGTM GACS PROJ
MCDONALD	DM	CFB/BFC SHILO	CUMYN	JM	CFB/BFC LAHR
MCMILLAN	DJ	CFB/BFC COLD LAKE	DUERMEYER	DW	NDHQ/DLAEEM/QGDN/DAEGTM
MELMOTH	TR	2 SVC BN PETAWAWA	GOODBODY	KJ	CFSAOE/EGAMFC BORDEN
MESZARDS	SJ	CFB/BFC WINNIPEG	HAMILTON	RD	CFB/BFC GAGETOWN
MEUNIER	JJG	CFE HQ/QG FCE LAHR	HOUSSIN	RO	CFB/BFC WINNIPEG
MOHER	BJ	CFB/BFC TRENTON	LABELLE	PJ	NDHQ/DCGEM/QGDN/DFGM
NAUMANN	MJ	CFB/BFC TRENTON	LITALIEN	JJP	202 WD/DA MONTREAL
NEVILLE	JJ	CFB/BFC GAGETOWN	LOGAN	CA	FMC HQ/QG ST-HUBERT
NEWELL	JG	CFSAOE/EGAMFC BORDEN	LUCIAK	AJ	CFB/BFC BORDEN
NICHOL	RE	4 SVC BN LAHR	NAULT	JG	202 WD/DA MONTREAL
PAQUET	JN	CFB/BFC MONTREAL	NOEL	JJG	202 WD/DA MONTREAL
PARADIS	JP	202 WD/DA MONTREAL	NORTHRUP	RM	NDHQ/DSVEM/QGDN/DVSGM
PERRY	JP	2 SVC BN PETAWAWA	ROY	GBE	CFB/BFC LAHR
PORTER	RE	NDHQ/DSVEM/QGDN/DVSGM	SERCERCHI	DR	NDHQ/DLAEEM/QGDN/DAEGTM
RAMIER	JD	2 RCR CFB GAGETOWN	SUMNER	RC	1 CDN LIGHT FD HOSP PETAWAWA
RAYMOND	JCG	5 CER VALCARTIER			
REAUME	JF	1 RCHA LAHR	<b>WO/ADJ 411</b>		
REST	AE	1 SVC BN CALGARY	ABTOSWAY	VN	CFB/BFC MOOSE JAW DUNDURN DET.
ROBBLEE	PE	CFB/BFC LONDON			
ROBERT	JRG	CFB/BFC LAHR	AIKENS	RA	CFB/BFC GAGETOWN
ROLFE	JD	2 SVC BN PETAWAWA	ALDERSON	GL	CFB/BFC KINGSTON
ROSS	MA	CFB/BFC CHILLIWACK	ALLAM	JA	RSS (PACIFIC) VANCOUVER
SHADDOCK	CC	2 PPCLI CFB WINNIPEG	ANTHONY	DG	CFSAOE/EGAMFC BORDEN
SHEHYN	JG	CFB/BFC MOOSE JAW	ANTONSON	AK	3 RCHA CFB/BFC SHILO
SHOEMAKER	HW	1 SVC BN CALGARY	ASSELIN	JD	5 <sup>e</sup> BN S DU C VALCARTIER
SIMARD	JJMC	5 <sup>e</sup> BN S DU C VALCARTIER	BANKS	CR	CFB/BFC LONDON
SIMARD	JUS	3 R22 <sup>e</sup> R VALCARTIER	BARR	RC	2 PPCLI WINNIPEG
SMALL	GF	CFSAOE/EGAMFC BORDEN	BEAULIEU	LC	CFB/BFC LAHR
ST-AUBIN	YR	2 SVC BN PETAWAWA	BEDARD	JJP	CFB/BFC MONTREAL
STRONG	DS	2 CER PETAWAWA	BELAIR	JJ	202 WD/DA MONTREAL
SWERDFERGER	MJ	AIRCOM HQ/QG CA WINNIPEG	BELANGER	R	1 SVC BN CALGARY
TENNANT	GJ	CFB/BFC EDMONTON	BELZILE	GG	202 WD/DA MONTREAL
TREVORS	LE	1 SVC BN CALGARY	BERGER	JRA	RCD CFB/BFC LAHR
VACHON	JGL	CFSAOE/EGAMFC BORDEN	BERGERON	JHP	4 SVC BN CFB/BFC LAHR
VANASSE	GE	202 WD/DA MONTREAL	BILODEAU	JF	CFB/BFC EDMONTON
VANDEPOL	BD	CFB/BFC EDMONTON	BLAKENEY	CR	RCD LAHR
VASS	JD	CFB/BFC CHILLIWACK	BOIVIN	JBR	5 <sup>e</sup> BN S DU C VALCARTIER
VIAU	AJM	CFB/BFC MONTREAL	BOUCHARD	JARC	RCD LAHR
WALTON	GA	CFB/BFC PORTAGE LA PRAIRIE	BOUCHARD	JHMC	3 R22 <sup>e</sup> R VALCARTIER
WALTON	JW	3 RCHA CFB/BFC SHILO	BOUTET	JJ	5 <sup>e</sup> BN S DU C VALCARTIER
WEHLING	RE	CFB/BFC BORDEN	BOYCHUK	P	CFB/BFC EDMONTON
WILSON	AW	1 SVC BN CALGARY	BRACKENBURY	TC	CFB/BFC CHILLIWACK
WILSON	RL	2 SVC BN PETAWAWA	CAMPBELL	GM	C SQN RCD GAGETOWN
WRIGHT	GG	NDHQ/DSVEM/QGDN/DVSGM	CAOUETTE	JG	202 WD/DA MONTREAL
YOUNG	GC	CFB/BFC COMOX	CARAVAGGIO	LND	CFB/BFC OTTAWA
			CHAUDAR	TP	CFB WIN MIL SP THUNDER BAY
<b>MWO/ADJUM 421</b>			CLEMENT	JA	25 CFSD MONTREAL
ANDERSON	JD	202 WD/DA MONTREAL	CLINTON	TE	LAV AUGMT LONDON
BESWICK	JE	NDHQ/DLES/QGDN/DSGT	CLOUGH	GM	4 CMBG HQ & SIG SQN CFB/BFC LAHR
BRIDER	BGC	FMC HQ/QG ST-HUBERT	COLLMORGEN	HD	2 SVC BN PETAWAWA
CHRISTOPHERSON	DR	1 SVC BN CALGARY	COOK	BM	CFB/BFC OTTAWA
CORBO	AA	202 WD/DA MONTREAL	COOPER	JA	2 SVC BN PETAWAWA
DAIGLE	JP	DREV/CRDV VALCARTIER	CORBETT	VA	CFB/BFC HALIFAX
DIONNE	JJ	5 <sup>e</sup> BN S DU C VALCARTIER	COTE	JAG	5 <sup>e</sup> BN S DU C VALCARTIER
EDWARDS	GD	CFB/BFC LAHR	CYR	JR	202 WD/DA MONTREAL
ETTER	FAW	CFSAOE/EGAMFC BORDEN	DAMOUR	JLP	5 <sup>e</sup> BN S DU C VALCARTIER
HOLDEN	TW	NDHQ/DLES/QGDN/DSGT			

DELL	JE	RSS (PACIFIC) VANCOUVER	MCCONKEY	ER	AB SVC CDO PETAWAWA
DENKIW	WS	CFB/BFC CHILLIWACK	MCCORMACK	DF	8 CH PETAWAWA
DEBRIENS	JI	CFB/BFC MONTREAL	MCLEAN	DL	1 SVC BN CALGARY
DESGAGNES	R	LETE/CETT ORLEANS	MCNEILL	CW	CFB/BFC MONCTON
DOOL	LA	CFB/BFC SHILO	MCNICOLL	JAL	12 RBC VALCARTIER
DUFOUR	SH	202 WD/DA MONTREAL	MEZZATESTA	F	3 RCR CFB/BFC BADEN
DUPUIS	CL	CFB/BFC CORNWALLIS	MOFFATT	ND	CFB/BFC WINNIPEG
DURLING	LL	2 RCR CFB/BFC GAGETOWN	MOREL	JJC	RSS EASTERN MONTREAL
DYCK	GD	1 SVC BN CALGARY	MORRISSEY	JRH	MLV(W) VALCOURT
EASON	GL	1 SVC BN CALGARY	MULHOLLAND	WM	RCD CFB/BFC LAHR
FAIRCHILD	TP	CFSAOE/EGAMFC BORDEN	MURDOCK	RG	2 PPCLI WINNIPEG
FERGUSON	KW	CFB/BFC LAHR	NARBONNE	GJ	CFSAOE/EGAMFC BORDEN
FISHER	GG	NDHQ/DSVEM/QGDN/DVSGM	NOBERT	DJ	1 SVC BN CALGARY
FOISY	GR	1 CER CFB/BFC CHILLIWACK	NORMAN	RA	LDSH (RC) CALGARY
FORTIN	JAR	5 <sup>e</sup> BN S DU C VALCARTIER	NORTON	DO	CFB/BFC NORTH BAY
FRANKLIN	TE	CFB/BFC WINNIPEG	OLEARY	JP	CFB/BFC LONDON
FRASER	CR	LETE/CETT ORLEANS	OLSON	JM	1 SVC BN CALGARY
GABRIEL	RA	LETE/CETT ORLEANS	PACEY	WV	CFB/BFC BORDEN
GAGNON	JCA	202 WD/DA MONTREAL	PARADIS	JML	MOST AUGMT OTTAWA
GALLANT	JR	5 <sup>e</sup> BN S DU C VALCARTIER	PAUL	MF	RSS PRAIRIE DET. THUNDER BAY
GAUTHIER	JLA	1 R22 <sup>e</sup> R LAHR	PELLETIER	JGM	RSS QUEBEC DET. QUEBEC
GAUVIN	JCG	5 <sup>e</sup> BN S DU C VALCARTIER	PELLETIER	JMA	202 WD/DA MONTREAL
GEBICKI	CS	CFB/BFC GAGETOWN	PELLETIER	JP	4 SVC BN LAHR
GEE	LW	CFB/BFC GAGETOWN	PERRY	RA	3 RCR CFB/BFC BADEN
GIBSON	T	CFSAOE/EGAMFC BORDEN	PHILLIPS	WD	2 SVC BN PETAWAWA
GOODWIN	MR	CFB/BFC BORDEN	POIRIER	JL	CFLA BORDEN
GORDON	AA	CFSAOE/EGAMFC BORDEN	POULIN	JR	3 RCR CFB/BFC BADEN
GRAY	DC	CFB/BFC TORONTO	PRODANIUK	JL	CFSAOE/EGAMFC BORDEN
GRUTCHFIELD	HA	CFB/BFC CHILLIWACK	RATENSPERGER	VR	1 RCR CFB/BFC LONDON
HALBOT	EB	CFB/BFC SUMMERSIDE	REITSMA	DJ	CFB/BFC CHILLIWACK
HARDING	JM	CFB/BFC COMOX	RICHARD	JEIR	5 <sup>e</sup> BN S DU C VALCARTIER
HARGRAVE	RJ	RCD LAHR	RICHARD	JFW	CFB/BFC GAGETOWN
HARRISON	JO	CFB/BFC PENHOLD	ROCHON	JG	1 CDN SIG REGT KINGSTON
HARTLEY	G	3 RCHA CFB/BFC SHILO	ROUSSIN	JRG	CFSAOE/EGAMFC BORDEN
HELM	WA	RSS CENTRAL DET. WINDSOR	RUSSELL	AW	1 SVC BN CALGARY
HENWOOD	GT	CFB/BFC GAGETOWN	SABELLI	AG	208 CFTSD MONTREAL
HUGHES	GW	CFB/BFC KINGSTON	SANDESON	RG	CFB/BFC TORONTO
HUGHES	KA	1 PPCLI CALGARY	SCHRADER	CA	CFB/BFC WINNIPEG
HUGHES	WP	CFB/BFC LAHR	SCOTT	EFJ	4 SVC BN LAHR
IRVING	WD	CFB/BFC KINGSTON	SCOTT	NR	1 RCHA LAHR
IRWIN	LT	CFB/BFC TRENTON	SEARS	GH	CFB/BFC SHEARWATER
JAMISON	LD	4 SVC BN LAHR	SHAIL	BL	CFB/BFC TRENTON
JOHNSON	RG	3 RCHA CFB/BFC SHILO	SHARPE	AE	CFB/BFC BORDEN
JONES	DL	1 CBG HQ & SIG SQN CALGARY	SHAW	WF	CFB/BFC TRENTON
KEITH	JAR	1 SVC BN CALGARY	SHWALUK	DD	CFSAOE/EGAMFC BORDEN
KIMBERS	AJ	CFB/BFC LAHR	SILLS	BR	CFB/BFC CHILLIWACK
KING	VW	CFB/BFC BORDEN	SIMARD	B	2 R22 <sup>e</sup> R QUEBEC
KNOWLES	BG	4 SVC BN LAHR	SMITH	DL	LETE/CETT ORLEANS
KOLESNIK	DT	SECLIST SUFFIELD	SMYTHE	OC	CFB/BFC TORONTO
KUZMICH	D	CFB/BFC EDMONTON	STEINKE	DE	CFSAOE/EGAMFC BORDEN
LAAJA	RO	1 R22 <sup>e</sup> R LAHR	STROWBRIDGE	A	2 SVC BN PETAWAWA
LACOMBE	DJ	2 RCHA PETAWAWA	STRUTHERS	GA	1 SVC BN CALGARY
LAHAISE	JE	CFB/BFC OTTAWA	TAYLOR	WN	CFB/BFC BADEN
LAMONTAGNE	JE	CFB/BFC COLD LAKE	THOMPSON	DK	CFB/BFC KINGSTON
LAUZON	JMA	CF TECH S ST-JEAN	THOMSON	EA	1 RCHA CFB/BFC LAHR
LAVOIE	JP	202 WD/DA MONTREAL	TIZZARD	EF	CFB/BFC GAGETOWN
LAYCOCK	RM	CFB/BFC EDMONTON	TREMBLAY	JRPH	CFB/BFC ST-JEAN
LEBLANC	JA	CFB/BFC LAHR	VERRAULT	JAR	5 CBG HQ & SIG SQN VALCARTIER
LEVESQUE	G	5 <sup>e</sup> BN S DU C VALCARTIER	WEBBER	CN	LDSD (RC) CALGARY
LITTLEWOOD	JAG	1 RCHA LAHR	WEINS	WR	CFB/BFC CALGARY
LOVELACE	LE	CFSAOE/EGAMFC BORDEN	WHITE	DW	WAINWRIGHT DET.
LUSK	ER	CFB/BFC SHILO	WHITEHEAD	PW	LETE/CETT ORLEANS
LYONS	DE	2 SVC BN PETAWAWA	WIENS	RA	2 CER PETAWAWA
MACINTYRE	JJ	CFB/BFC CALGARY	WIESSELMANN	KP	CFB/BFC HALIFAX
		WAINWRIGHT DET.	WILLIAMS	LE	1 SVC BN CALGARY
MACLEAN	FD	CFB/BFC HALIFAX	YANCHA	CA	CFB/BFC OTTAWA
MAILLOUX	JRJ	CFB/BFC MONTREAL	YOUNG	RW	CFB/BFC KINGSTON
MARQUIS	JW	CFB/BFC BAGOTVILLE			
MARTIN	FG	1 SVC BN CALGARY			
MARTIN	ME	CFB/BFC CORNWALLIS	WO/ADJ 421		
MAWLE	MF	CFB/BFC KINGSTON	ALLAN	GR	CFB/BFC LAHR

BEDARD	NL	CFB/BFC GAGETOWN	WO/ADJ 435	AC	1 SVC BN CALGARY
BELIVEAU	JHJ	CFB/BFC GAGETOWN	ALDERTON	JM	202 WD/DA MONTREAL
BOLESZCZUK	G	CFB/BFC LONDON	BEAN	JD	202 WD/DA MONTREAL
BOURDAGE	JSD	208 CFTSD MONTREAL	BUJOLD	L	CFB/BFC HALIFAX
BRYANT	NG	2 RCHA PETAWAWA	CELESTER	BH	CFB/BFC BORDEN
CARVERY	KR	CFB/BFC BORDEN	COOK	MD	202 WD/DA MONTREAL
CLARK	RK	1 SVC BN CALGARY	COSMAN	J	202 WD/DA MONTREAL
COUGHLAN	AW	NDHQ/DLES/QGDN/DSGT	DOUCET	RJ	CFB/BFC WINNIPEG
DAIGNEAULT	R	202 WD/DA MONTREAL	DUNFORD	DC	202 WD/DA MONTREAL
DERROCHERS	JPA	202 WD/DA MONTREAL	DUNN	RJ	202 WD/DA MONTREAL
DUFFENAIS	D	CFSAOE/EGAMFC BORDEN	FISHER	GE	CFB/BFC GAGETOWN
FINK	JB	8 CH PETAWAWA	FORWARD	DD	NDHQ/DLES/QGDN/DSGT
GAGNE	JMG	3 R22 <sup>o</sup> R VALCARTIER	FOX	JG	LETE/CETT ORLEANS
GREENLEY	CD	CFSAOE/EGAMFC BORDEN	JESTY	GA	4 SVC BN LAHR
GRENIER	JJN	12 RBC VALCARTIER	KING	JS	CFSAOE/EGAMFC BORDEN
GRIFFIN	RM	CFB/BFC TORONTO	LAIRD	JMA	CFSAOE/EGAMFC BORDEN
HUTCHINGS	WR	2 SVC BN PETAWAWA	LEBLANC	EN	NDHQ/DSVEM/QGDN/DVSGM
KALMAKOFF	J	CFB/BFC CALGARY	LOWE	DE	2 SVC BN PETAWAWA
KEMPT	CE	CFSAOE/EGAMFC BORDEN	MONTAGUE	JBW	CFE HQ/QG FCE LAHR
KOK	F	1 RCHA CFB/BFC LAHR	MOONEY	CFA	1 SVC BN CALGARY
LAGACE	JPC	5 RALC VALCARTIER	MORGAN	JA	CFB/BFC MONTREAL
LAMY	JPA	CFB/BFC MONTREAL	NORSWORTHY	FR	MCE/S CARTO OTTAWA
LAVIGUEUR	JPA	202 WD/DA MONTREAL	PADDOCK	JC	202 WD/DA MONTREAL
LEBLANC	JRR	CFB/BFC EDMONTON	PALARDY	C	5 <sup>e</sup> BN S DU C VALCARTIER
MILLOY	RJ	LETE/CETT ORLEANS	ROBERGE	MH	202 WD/DA MONTREAL
OSADUIK	GOS	CFSAOE/EGAMFC BORDEN	ROOME	GG	CFB/BFC ESQUIMALT
PROVENCHER	JBM	5 <sup>e</sup> BN S DU C VALCARTIER	ROSA	RM	CFSAOE/EGAMFC BORDEN
PURDY	DE	RCD CFB/BFC LAHR	RUSSELL	J	NDHQ/DLAEEM/QGDN/DAEGTM
RISSER	LW	CFB/BFC SHILO	RUTTER	WG	MILPAC
ROUSSEAU	JS	3 RCHA CFB/BFC SHILO	STAVERT	TH	CFB/BFC GAGETOWN
SMITH	JM	CFE HQ/QG FCE LAHR	TANIWA	SR	1 SVC BN CALGARY
SMULSKI	DR	AIRCOM HQ/QG CA WINNIPEG	TAYLOR	JGJC	CFB/BFC SHILO
STRONG	HM	CFB/BFC HALIFAX	TREMBLAY	S	5 <sup>e</sup> BN S DU C VALCARTIER
TOEBAERT	FM	CFB/BFC ESQUIMALT	VRSKOVY	RG	CFB/BFC CHILLIWACK
TWEEDALE	PWH	CFB/BFC OTTAWA	WILSON		2 SVC BN PETAWAWA
WASH	AJ	CFB/BFC PETAWAWA			

# sports stop



ALWAYS SHOT ROCK — BGen Roland Doucet, DLEM, delivers the DG's stone opening the Fourth Annual Eastern Land Maintenance Bonspiel at CFB Gagetown, 23 Mar 84. Looking on are Maj Bob McLeod, OC Maint Coy., MWO Ed Leblanc from CFB Valcartier, CWO Smith, ETSM Maint Coy., and Branch Chief Warrant Officer Tom Jones



Fourteenth Annual Western EME Bonspiel, held at CFB Penhold 20-24 Feb 84. BGen Doucet (centre) presenting the host trophy to the winners of "A" event. Sgt Jack Ford (Tels Tech), Cpl Bob McDonald (Machinist), WO Len Cunningham (Radar Tech) and Sgt Gord Goddard (Welder)

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## SPECIAL DISPLAY MARKS 40TH ANNIVERSARY OF RCEME — 1944-1984

On 29 Jun 84 a brief ceremony was held at NDHQ when BGen JGR Doucet, DGLEM and LEME Branch Adviser, accepted an historical display from BGen JY Durocher, Director General Information.

The display was developed by the Director Exhibitions and Displays in cooperation with Director Land Engineering Support, to commemorate the 40th Anniversary of the formation of the Corps of Royal Canadian Electrical and Mechanical Engineers, which occurred on 15 May, 1944.

RCEME activities are traced in colourful photos and text from the Second World War and Korean Operations, through to NATO and peace-

keeping duties under the LORE Branch, ending on a futuristic note of technological challenges facing the newly named LEME Branch.

An attractive showcase was also designed, containing RCEME/LORE memorabilia and artifacts on loan from the Base Borden Military Museum. Prominent here is a copy of the recently published history: "Canada's Craftsmen".

The display was on view at NDHQ during the summer, 1984, attracting numerous visitors. The portable design allows for convenient installation and dismantling into several protective packages, for shipment to other LEME establishments and the Base Borden Museum.



## Canada's Craftsmen

Over the past 40 years, Canada's Craftsmen in the Forces have provided outstanding service in their primary role — to maintain the equipment of the Land Forces in a state of operational readiness. Whether on the battlefields of Europe and Korea, or in United Nations peacekeeping and NATO duties at home and abroad, the Officers and Craftsmen are there to repair, recover, design, modify or manufacture combat equipment.

## Les hommes de métier des forces canadiennes

Au cours des 40 dernières années, les hommes de métier des Forces canadiennes ont fourni des services remarquables dans leur rôle principal, qui consiste à maintenir l'équipement des forces terrestres en parfait état de fonctionnement. Que ce soit sur les champs de bataille d'Europe ou de Corée, dans les forces de maintien de la paix des Nations Unies, ou dans les régiments de l'OTAN, au pays comme à l'étranger, nos officiers et nos hommes de métier étaient là pour réparer, récupérer, concevoir, modifier ou fabriquer de l'équipement de combat.



1944

## RCEME

The Royal Canadian Electrical and Mechanical Engineers (RCEME) was formally authorized as a corps of the Canadian Army on 15 May 1944, during the Second World War. The purpose of the new Corps was to ensure the efficient use of skilled manpower in short supply, by absorbing into a single formation, the Officers, Craftsmen, and the electrical and mechanical repair functions, which were dispersed at the time throughout the Royal Canadian Ordnance Corps (Engineering), Royal Canadian Army Service Corps, and the Royal Canadian Engineers.



## GEMRC

Le Génie électrique et mécanique royal canadien (GEMRC) a été constitué officiellement comme corps de l'Armée canadienne le 15 mai 1944, au cours de la Seconde Guerre mondiale. La mission de ce nouveau corps d'armée était de veiller à ce qu'on emploie efficacement la main-d'œuvre qualifiée, qui était rare à l'époque, en regroupant dans une seule formation les officiers, les hommes de métiers, et les spécialistes de la réparation électrique et mécanique, auparavant dispersés dans diverses unités du Corps royal des magasins militaires de l'Armée canadienne, du Corps royal d'intendance de l'Armée canadienne, et du Génie royal canadien.



## 2861 RCEME ARMY CADET CORPS WINDSOR, ONT.

by Capt WP Brooks, Commanding Officer

In April, 1969, the RCEME Association of Windsor was formed, composed mainly of members of 39 Tech Sqn RCEME (Windsor). MWO Jack Stark was installed as the first President. LCol RJ Lavigne CD, then Commanding Officer, 39 Tech Sqn, along with Maj CN Raven, OSTJ, CD talked of the formation of an Army Cadet Corps to be affiliated to the unit.

On 1 Oct, 1969, 2861 RCEME Army Cadet Corps was born and Maj CN Raven was appointed the first CO. Maj Raven is a qualified Aeronautic and Electronic Technician who served for many years in the Infantry, Cavalry and the RCAF. He is also a past CO of the St. John Ambulance Brigade and a Director of the St. John Ambulance Association. Then, 39 Tech Sqn RCEME was officially proclaimed an affiliated unit.

MWO Stark, a veteran of the First and Second World Wars, later to be known as Father Stark by the cadets, was approached as President of the RCEME Association to become sponsors of the new Cadet Corps. The Association whole-heartedly accepted.

2861 RCEME Army Cadet Corps has been a most active corps in the Windsor and Southwestern Ontario area. We are very community oriented, participating through the years in many

citizenship activities such as working with the retarded, blind, handicapped, special olympics and the YM/YWCA.

In its 15 year existence, the Corps has won the Col Roney Trophy for efficiency once, and the Strathcona Shield five times for the most efficient and best Army Cadet Corps in the Western Ontario Area. The Corps has also been a runner-up for this award three times.

In 1979, the RCEME Association requested and received assistance from the Royal Canadian Legion in sponsoring the Corps. Branch No. 578, Royal Canadian Legion was formally inducted as the Co-sponsor of the Corps. In return, the cadets assist the Legion with their Bingos, and the Corps Band plays at all their parades.

In 1973, Maj RD Stephenson, OSTJ, CD, became the new CO of the Cadet Corps, bringing with him the experience of many years regular service in the RCR. During his command he also spent the summers as a Coy Commander at Ipperwash Army Cadet Camp. On completion of his tenure in 1977 he was appointed Training Officer and Chief Instructor of Ipperwash Army Cadet Camp.

In 1977 Maj SJ Lee, CD, currently President, the RCEME Association of Windsor, took over



command. He was formerly a W02 in RCEME and RQMS of 39 Tech Sqn for many years. He originally joined RCEME during the Second World War and ended his Regular and Reserve service after some 40 years. His tenure saw the formation of the Corps Drum and Bugle Band. The band has been very active performing in many local parades and competitions.

1981 saw Capt WP Brooks assume command. He is the son of Sgt (Retd) WR Brooks, CD, of RCEME/LORE and a former Regular/Reserve officer with the Provost Corps and Security Branch. He has already seen two tours as a Coy Commander (A/Major) at Ipperwash Army Cadet Camp (IACC). Since assuming command, the Corps has implemented a Land Operations Detachment which includes training in rappelling, canoeing, wilderness survival, cross-country skiing and winter survival. Also, a technical training squadron has been organized and will become fully operational in the fall, 1984. Training will be undertaken in vehicle and weapons maintenance, electronics and photography. All courses closely relate to our namesake (RCEME).

During the last three years the Corps has been very proud of its senior cadets. Many have gone on into the Regular Force and Militia. Listed here are some whose achievements earned them prestigious courses and trips to Europe. CWO W. Smith (RSM) was selected for Flyover training in Germany in 1981; CWO N Tabbenor (RSM), now

OCdt (R) with the Corps, was the 1982 top cadet in Ont. and Canada, winning a trip to the UK; CWO K Busby (first female RSM) was selected as a member of the Cadet Bisley Team, going to England in 1983. Her team received top honours, placing first in the 1983 competitions. 1983 also saw the Corps Training Officer, 2Lt P Ouellette and Civilian Instructor David Brooks (the CO's brother and former cadet of the Corps) presented to HRH Prince Philip in London, and received the Gold Duke of Edinburgh Award. At the same ceremonies the Corps was represented by the CO, Capt Brooks, the AdmO, Lt Smith and four cadets on the Award Program who presented a Search and Rescue display for Prince Philip. Just recently one of our girls, MCpl S Armstrong, was the highest qualifying female, and only second to a male cadet as the highest in Ont., qualifying for her Gold Star/Master Cadet Award, the highest distinction an army cadet can achieve. With this award, she has been selected to attend the Cadet UK Cultural Tour in April, 1985.

Our cadets, male and female, are highly dedicated and indeed an honourable credit to the wearing of the badges and insignia of the RCEME Corps in Canada. This is the only Army Cadet Corps in Canada entitled to wear RCEME insignia. We follow a proud heritage in carrying on the RCEME tradition.

Nunquam non paratus

May 1984



COL MAC CAMPBELL, CD, NDHQ/DLES, REVIEWS 2861 RCEME ARMY CADET CORPS, WINDSOR, ONT. DURING THEIR 15TH ANNUAL INSPECTION, 26 MAY 1984. ACCOMPANYING THE REVIEWING OFFICER IS THE CO, CAPT WP BROOKS (LEFT), CADET WO JOANNE WILSON AND CWO DAVID WOODMAN



COL CAMPBELL PRESENTS THE COMMANDING OFFICER'S TROPHY TO CWO DAVID WOODMAN, TOP CADET AND SENIOR RANKING CADET. SEATED IS LCOL (W) EM PLANTE CD, AREA CADET INSTRUCTOR LIST OFFICER AND ON THE RIGHT IS CADET CIVILIAN INSTRUCTOR DAVID BROOKS



DRUM AND BUGLE BAND. 2861 RCEME ARMY CADET CORPS, WINDSOR, ONT.



## BOY SOLDIERS OF THE CTTC

by BGen (Retd) WJ Yost and LCol (Retd) RL MacIntosh

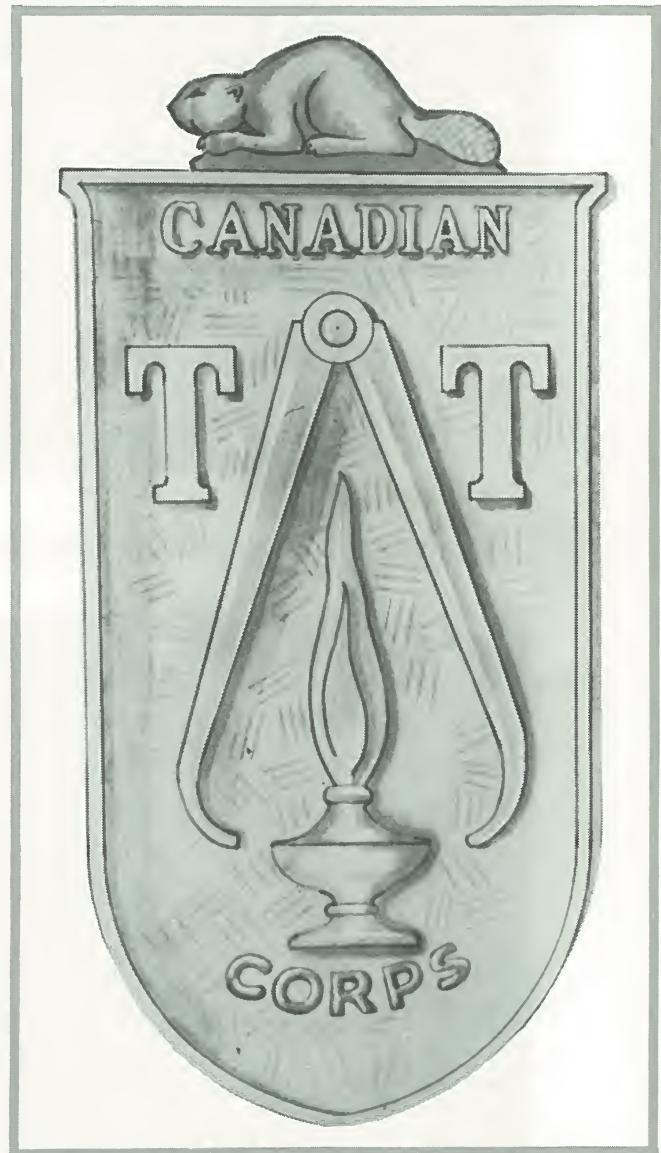
Illustrated is the badge of the Canadian Technical Training Corps which was organized in 1943 to provide young tradesmen for the Canadian Army. Approximately half the "Boys" trained in the CTTC transferred to RCEME, and many served to retirement after full careers.

It is believed that the last former Boy Soldier of the Canadian Technical Training Corps (CTTC) serving in either the Regular Force or the Primary Reserves retired sometime in 1982. As the ex-members fade into retirement, it is perhaps fitting to briefly review the history of this rather exclusive group, and pass on a "Well Done".

Back in 1942 the Second World War was being pursued, with the final outcome still in doubt. Three years of recruiting for the vastly expanded Forces, coupled with the demands of Canadian industry, had resulted in a serious shortage of tradesmen. In November of that year, the Adjutant-General of the Canadian Army made a submission to the Minister, "for the purpose of obtaining Privy Council authority to permit the enlistment into the Army of Boys who would undergo trades training", and stated, "this plan will have the effect of increasing the flow of trained tradesmen into the Army".

Approval was given for the formation of the Canadian Technical Training Corps. Boy soldiers were trained over a period of 16 months in both military skills and trades, and then were eligible for overseas service. Average age on enlistment was 17.1 years. The rank of Boy was given until 17.5 years of age, at which time his pay increased from 70 cents to \$1.30 per day, with "promotion" to Private.

This was a popular program despite the modest pay package; however, by February, 1945, the war's end was in sight, and it was decided to discontinue enlistment of Boys into the CTTC. A considerable number had passed through the program and 2 300 were, at that time, undergoing training. Many graduates quickly became NCOs due to their unusually long (for those times) training, and their dedicated approach to the military. It was the aim of every member of the Corps to get



into an overseas reinforcement draft as quickly as possible.

Electrical, Mechanical, Automotive, Drafting and Survey courses were taught to the Boys at Hamilton, Rimouski, Saint John, Saskatoon, Victoria, and other centres. Most final trade tests were given at S8 Canadian Army Trades School, Hamilton, often followed by more advanced trade courses such as radio, instrument, or weapons repair. Successful completion was followed by a

six week course at S5 Canadian Drivers and Maintenance School, Woodstock, Ont., after which the graduate was assigned to a new Corps as a fully trained soldier. His first act was usually to throw his CTTC cap badge as far as possible, so that he would not be identified as ever having had Boy status. As a consequence, the badges are now rare collectors items. Even the National War Museum has only one in its vast collection.

A surprisingly large number of CTTC graduates served on after the war in the Regular and Reserve Forces, with approximately half pursuing careers in RCEME/LORE as officers or tradesmen, as well as in allied corps such as RCE, RCASC, and RCOC. Over the years, among their ranks could be found at least one brigadier-general, and several colonels, majors, and other officers; but perhaps most important of all was the widespread number of skilled senior tradesmen who started with the CTTC and stayed on to contribute so greatly to the professionalism of the peacetime Canadian Army.

For many years it was impossible to identify ex-CTTC members, as no specific records were ever kept which would permit a listing by personnel staffs. After about 1978, however, this situation changed, as it became increasingly likely that anyone still serving in the Armed Forces, and wearing the Canadian Volunteer Service Medal,

may have been a former Boy Soldier. Many ex-members, spotting a likely prospect in this way, would broach the question, "You weren't by any chance in the CTTC?", to discover that another old Boy was still in there carrying his musket. In some locations, small reunions began to take place. One of these reunions occurred in 1966 when a dozen members gathered in the Petawawa woods at 2 Field Workshop, RCEME, to relive younger days.

This has led to a decision to hold a first ever national reunion in Ottawa in July, 1985. The organizing committee is trying to contact all ex-CTTC members, both those who went to 'civvy street' in 1946 and those who served on; to build up a mailing list for this event. Former Boy Soldiers reading this article are invited to pass on their address to the CTTC Reunion 85 Secretary:

<b>Garth Husk</b> 988 Blythdale Road Ottawa, Ont. OR K2A 3N8	<b>Ralph MacIntosh</b> NDHQ/DGLEM Ottawa, Ont. K1A 0K2 (992-7484)
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Details of the forthcoming event will be mailed out in plenty of time to allow ex-members to dig out their old flashes and badges, and to dust off those stories of "Remember when . . . . ?"



CTTC Reunion, 2 Field Workshop, Petawawa, 1966

Front row. (L to R) S/Sgt Brimmage, RCEME Maj (later LCol) Leach, RCE  
Unidentified Maj (later LCOL) MacIntosh

Back row. Unidentified Unidentified WO2 Freeman, RCOC  
Unidentified Maj (later BGen) Yost, RCOC S/Sgt Campbell, RCEME  
Cfn Mainprize, RCEME Unidentified



Bill Yost, Bill Haverty, Stewart Moore, Garth Husk and Art Eady Former "Boy Soldiers" meeting in Ottawa, Oct., 1983 to plan reunion

(Photo courtesy The Citizen, Ottawa)

# PROJECT OSCAR

By: Lt Charles Frost



202 Workshop Depot recently celebrated the presentation of an official unit badge at a ceremony culminating two years of work by the design committee.

It was a message from NDHQ that started everything. The message reminded us that the report of the task force on unification recommended further identification of units, and that ADM (Mat) encouraged its units to establish heraldic badges as symbols of identification.

202's CO at the time, Col H.D. Byer, selected Oscar Wattie to chair the design committee. Thus Project Oscar was born, so named not because of Mr. Wattie's name, but because Oscar means "valourous warrior" in Celtic.

The committee prepared a competition to determine a design for the unit badge. All members of 202 WD were encouraged to submit designs, and 34 were received. These submissions were displayed and then voted on by unit members. Cash prizes were awarded to the creators of the top three designs. They are Mr. Roger Saillant, Miss Margot Provost and Sgt Mike Dansereau. Also, an album containing all the submissions was prepared to serve as an official record of the unit badge.

A delegation of committee members proceeded to visit the Director of Ceremonial in Ottawa. To their dismay, it was found that the winning design was unacceptable as a heraldic badge because, among other reasons, it contained views of current military equipment. The second place design was also disqualified.

Project Oscar then went into Phase II, which required the committee to develop a unit badge by any means except another contest. All the designs were reviewed and it was decided that Sgt Dansereau's design could be modified to meet the strict rules governing heraldic badges. Several artists were consulted and eventually the current design evolved. The changes from the original design are actually minor. The final design was forwarded to Buckingham Palace where it was signed by Her Majesty the Queen. It is now safely stored in Ottawa. The accompanying photo depicts the

approved unit badge, and the following text is the official version of the description:

## DESCRIPTION

On a field of azure blue the charges marshalled and imposed are: Armament, Electrical and Mechanical Engineering, reflecting the environment and the mission of a "Land Ordnance Engineering Unit" as unique as 202 Workshop Depot.

## SIGNIFICANCE

Your charges marshalled on a 360° escutcheon are representative of the many techniques and skills and are imposed:

### Dexter (right)

A half barrel in silver with bore and lands is representative of all armament and weaponry techniques and skills.

### Sinister (left)

A half gear in silver is representative of all the mechanical techniques and skills.

### Fess or Heart

The single vertical double segmented flash in gold is representative of all the electrical and electronic techniques and skills.

## COLOURS

The charges will be imposed in silver and gold on a field of azure blue representing the "Land Ordnance Engineering" colour.

The inscription in French and English, along with the workshop's number, will be imposed on a field of 'gules' red in gold and is to be representative of the land element in the Canadian Forces.

## MOTTO

(Latin) Primus inter pares  
(English translation) First amongst peers

Naturally, approval of a unit badge calls for a celebration. This was organized by a separate

committee chaired by Major Claude Dubois. 202 Workshop Depot paraded before Major General Senior, Associate ADM (Mat), who presented the unit badge to the present CO, Col L.A. Leflar. He also presented copies of the badge to the committee members who had worked to complete this project. In return, the most junior member of the Workshop, Craftsman Brian Gates, presented MGen Senior with a beautiful wooden carving of the badge, made by Maj Dubois.

A new unit flag was unfurled during the parade. This flag is a LORE Branch flag with an embroidered unit badge sewn on each side. The very detailed embroidery was done by the skilled hands of Mr. and Mrs. Marcel Delisle. Other forms in which the unit badge may be found are metal etchings manufactured at 202, buttons, enamel lapel pins, and cloth badges for wear on the work dress uniform.

MGen Senior addressed the members of 202 Workshop Depot during the parade. He said

that the approval of a unit heraldic badge by Her Majesty the Queen was an event of considerable historic significance, and, more importantly, that it symbolizes the pride that the members of the unit have in themselves and in what they do. He also said that 202 WD is a very valuable resource for the ADM (Mat) Group and that despite adversities could be counted on to accomplish demanding tasks.

After the parade an all ranks reception was held in the Longue Pointe gymnasium. This included lunch, drinks and a chance for all to converse with and meet other members of the workshop and NDHQ. Col Leflar used the occasion to talk to all present about the committees which had produced the crest and organized the presentation. He also spoke of the challenges facing 202 and expressed his confidence in the spirit and the desire of the members of the workshop to continue heading in the right direction.

## ARTE ET MARTE!



MGen Senior officially presents the unit badge to Col Leflar. It is now on display in 202's HQ.



Craftsman Brian Gates presents a wooden engraving of the unit badge to MGen Senior as a memento of the ceremony.



MGen Senior and Col Leflar display 202 Workshop's new flag. The crests were hand embroidered by Mr. and Mrs. Marcel Delisle.

# SILICONE BRAKE FLUID

by Capt Dennis Hartwick

## HISTORY

Although Silicone Brake Fluid (SBF) has achieved widespread public notice only in the last few years, the concept has been around for many years, born out of the long-recognized shortcomings of conventional "polyglycol brake fluid" (CBF).

The US Army Mobility Equipment Research and Development Centre, which became MERADCOM, has been actively studying and developing SBF technology since the late 1960's, and your writer began receiving laboratory and field test reports as early as 1975. My successor, Capt Bruce Barnett (who later became my predecessor in Fuels and Lubricants) was a strong proponent of SBF and gained considerable yardage toward its introduction into service. Today with the accumulation of favourable technical literature and actual fleet experience dating back to large-fleet conversions in 1979 and 1981, there remains no rational case against our taking advantage of the operational and economic benefits of SBF.

## SILICONE BRAKE FLUID VERSUS CONVENTIONAL BRAKE FLUID

The main shortcoming of CBF is that it is hygroscopic (picks up water). The water is picked up through air vents and, perhaps more alarmingly, through rubber brake hoses. This "wetting" of the CBF leads to three distinct performance problems:

- a. reduced fluid vapour pressure (or lower brake vapour lock temperature);
- b. corrosion of metal brake components; and
- c. inferior cold-temperature performance.

The adverse effects increase with increased water content (which correlates with in-service age of the fluid). It will be assumed that readers of the EME Journal will need no explanation of the harm the effects of "wet" brake fluid can visit upon a military automotive fleet.

Silicone fluids, on the other hand are hydrophobic in that they repel water and therefore exhibit none of the adverse effects caused by

ingress of water into a brake system. In fact it has been reported by MERADCOM that in comparative field trials with a variety of vehicle types and brake fluids; severe conditions of high humidity or extreme cold caused the tests involving CBF to be terminated prematurely due to performance problems, whereas the SBF-equipped vehicles went to test completion without problems. The conclusion of the trial was that the US Army could operate solely on SBF, thereby replacing three different types of CBF (normal, arctic type and preservative type). This conclusion became US Army policy and conversion to SBF was completed in 1981.

Over the years of study and use of SBF, a variety of objections to its use have arisen. These, with one exception, have either proven groundless or been solved through continued product improvement. The one exception is the problem of initial cost of the fluid, which is three to four times that of CBF. However, the added cost, particularly in the case of an Original Equipment Manufacturer (OEM) fill, is insignificant in comparison with vehicle cost, and is easily rationalized in terms of improved system reliability and availability along with down-the-road reduced maintenance costs.

## THE WAY AHEAD

The last of the logistic hurdles have been cleared toward adoption of and conversion to SBF. The NATO Fuels and Lubricants Working Party has allocated NATO CODE NUMBER "H-547" to the US Military Specification MIL-B-46176 which describes SBF. The Canadian Forces procures SBF to MIL-B-46176 and it appears as NSN 9150-21-886-3664 in 1L containers, and NSN 9150-21-886-3665 in 4L containers. Our laboratory and field testing of SBF has progressed satisfactorily, and upon completion of testing instructions will be issued with details of fluid conversion implementation. In general terms, there will be no wholesale "retrofitting" or replacement of fluid in brake systems now using CBF. Instead, these vehicles will be topped up, or lost fluid replaced, with SBF. Since there are no vehicles currently in service with SBF as an OEM fill, existing stock of CBF (identified as "3GP510D" or "VV-B-680") will be used up. New

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families of vehicles (FOVs) will be OEM filled with SBF, but by the time these vehicles reach the field all stocks of CBF will be exhausted. On the subject of mixing SBF and CBF, the following general rules apply:

- a. CBF added to a brake system filled with SBF will diminish the superior performance characteristics of SBF to some degree; and
- b. SBF added to a brake system filled with CBF will have virtually no effect; in fact it

will not mix with CBF but instead will "layer out" above the CBF in the reservoir.

The co-ordinator or OPI for the change-over from CBF to SBF is NDHQ/DCGEM 3-2-2. Individual fleet LCMMs will issue separate instructions where their brake systems have individual requirements. It is not anticipated that equipment servicing CFTOs will be amended solely to reflect the change in brake fluid use, but the change will be included in the next scheduled amendments to these CFTOs.

# ACCURACY OF LEOPARD C1

by Capt. J. Grefford

## BACKGROUND

The results of the Canadian Army Trophy (CAT) in 1979 and 1981 indicated that there was a problem with Leopard tanks equipped with the SABCA produced integrated fire control system (IFCS). The problem was the degradation of accuracy originating from solar heating.

## AIM OF THE STUDY

In Oct 81 DLAEEM tasked DREV to investigate this accuracy problem and to recommend solutions. The approach adopted at DREV was to follow two concurrent phases:

- To conduct a full "static evaluation" of the errors introduced when the tank is heated by the sun; and
- To develop a muzzle reference system (MRS) to eliminate the line of sight/gun barrel pointing discrepancy introduced when the tank is exposed to the sun.

At the beginning, the second phase was risky because the static study results were not available. However it now appears that the approach was valid and saved considerable time.

## STATIC EVALUATION

The objective was to obtain the quantitative value of the errors. Appropriate measuring equipment had to be developed and procured to conduct this phase:

- A solar "heat simulator" was built with 250 infra-red lamps each with an output of 375 watts in order to obtain an intensity of approximately that of the noon-day sun in the summer ( $1000 \text{ w/m}^2$ ). The requirement for almost 100 KW in power necessitated the installation of a new power supply, complete with transformer. The simulator intensity can be somewhat varied to give various sun exposure conditions (Fig. 1).
- A 60-channel HP-65 data acquisition system was purchased and the required software developed to handle the massive flow of data which would be generated (Fig. 2).

- Over 100 temperature sensors were installed on the tank turret and gun barrel and interfaced with the data acquisition system (Fig. 3).
- Electronic levels with a range of  $\pm 1$  degree, accurate to 0.001 milliradian, were acquired.
- Adaptors were designed and fabricated for the above levels in order to monitor the movements of the resolver linkages, sights, breech, barrel and resolver (Fig. 4).
- Helium Neon lasers and associated beam splitters, levelling tables and mirrors were used to monitor the thermal deformation of the turret and gun barrel. The movement of up to eight points on the turret roof could be monitored simultaneously. Equipment to record the movement of the main sight line-of-sight was also developed.
- Elaborate finite-element models of the turret were developed so that available software (principally the ASAS and ASAS-HEAT codes) could be used to model the temperature build-up, and consequent thermal deformation, of the turret roof under various scenarios, for both comparison with and extension of the experimental data. The above work was carried out by scientific and technical personnel in both the Armaments and Electro-Optics Divisions under the general guidance of a Task Action Group.
- A series of carefully-planned experiments were carried out under the solar heat simulator and a large amount of high quality data was obtained. Analysis and further experimentation is still underway. It seems clear at this point, however, that thermal deformation of the turret roof is a major problem area. The turret roof essentially "bubbles up" when heated taking the sights with it. Fortunately cost-effective short-term solutions seem feasible and breadboard models are being tested. Those readers involved with the Leopard C1 tank will be informed of both the results of the DREV studies and the

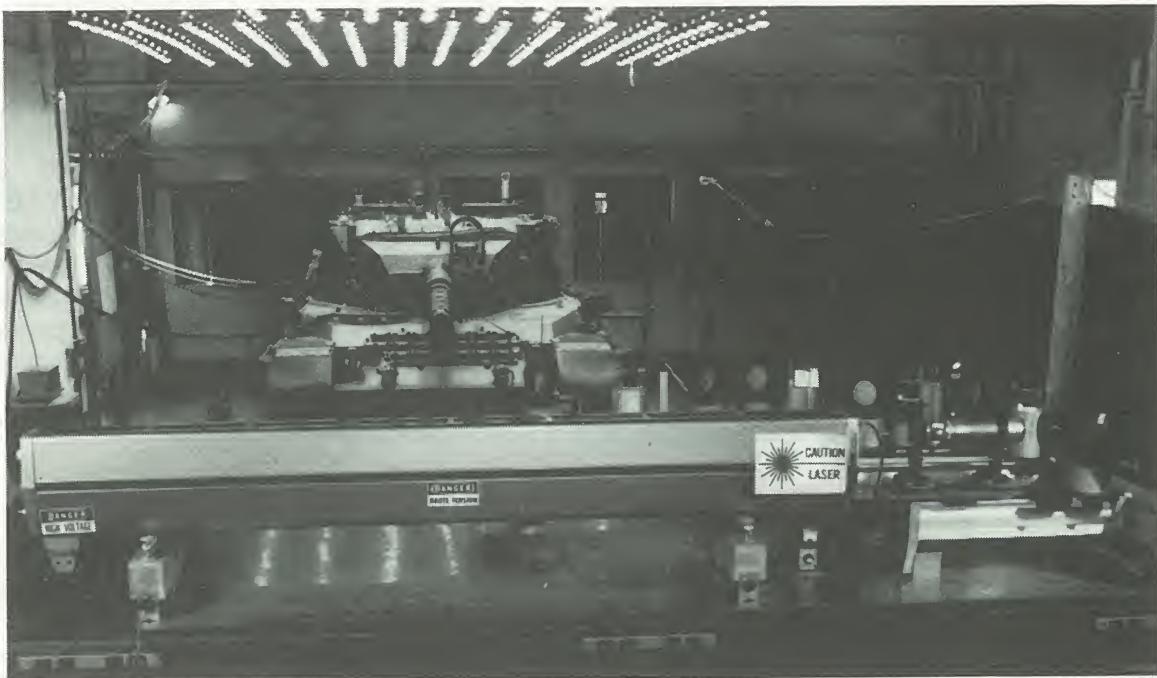


FIG. 1 — Leopard C1 under the Solar Simulator



FIG. 2 — Data Acquisition System

recommended solutions. Two promising solutions are:

- a new parallel linkage arm between the resolver and the gun; and
- a thermal compensator to electronically correct the mirrors from temperature data within the turret.

#### MUZZLE REFERENCE SYSTEM

This phase was undertaken after a survey of the US and UK MRS systems. An MRS appears to be the ideal system to eliminate the errors between the muzzle and optical line of sight. A MRS laboratory model was developed by DREV and has been experimentally tested on the Leopard tank. A militarized prototype model is to be developed by industry and tested in a tactical environment.

The MRS consists of a laser transmitter (Fig. 5) located on the turret roof and a mirror reflector near the muzzle end. A quadrant detector receiver detects the muzzle deviation from its original alignment when the barrel is made to pass through a referenced angle. This is done automatically, in less than one second, by the MRS computer and the results stored until the next update. The output of the MRS computer is added

to the fire control computer solution before being fed to the Sight Electronic Box, which controls the main sight.

The specifications for a prototype to be procured from commercial sources have been written and a contract should be awarded soon. Such a muzzle reference system would give an improved first round hit probability, but this approach is a long term solution.

## CONCLUSION

The Armaments, Electro-Optics and Data Systems divisions at DREV contributed to this project and the results obtained thus far are invaluable to improving our tank's accuracy. Australia and Belgium who use the SABCA IFCS, have shown some interest in this project since their tank and sighting system are identical to the Canadian Leopard C1. The efforts accomplished thus far have been outstanding especially when considering the limited resources available.

## DATA ACQUISITION SYSTEM

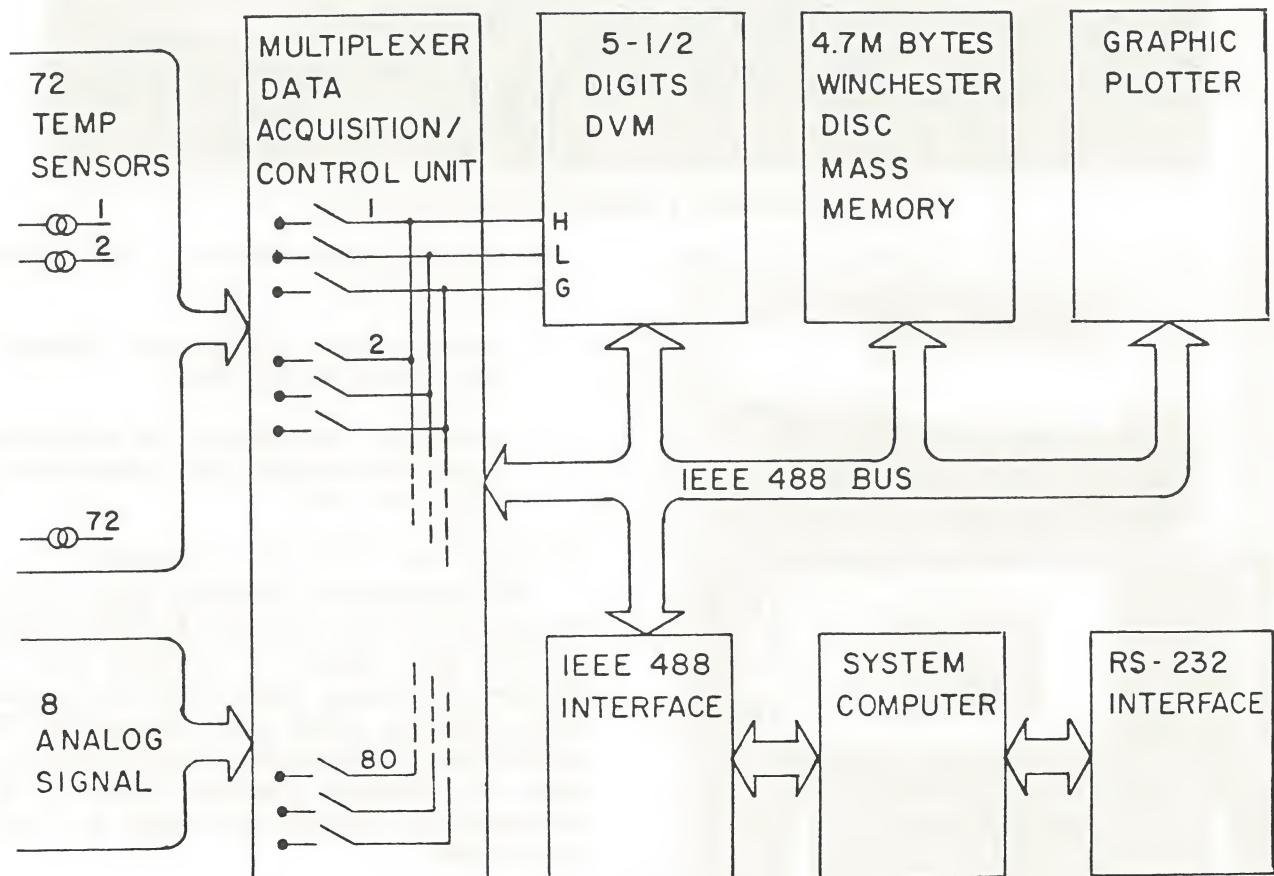


FIG. 2 — Data Acquisition System

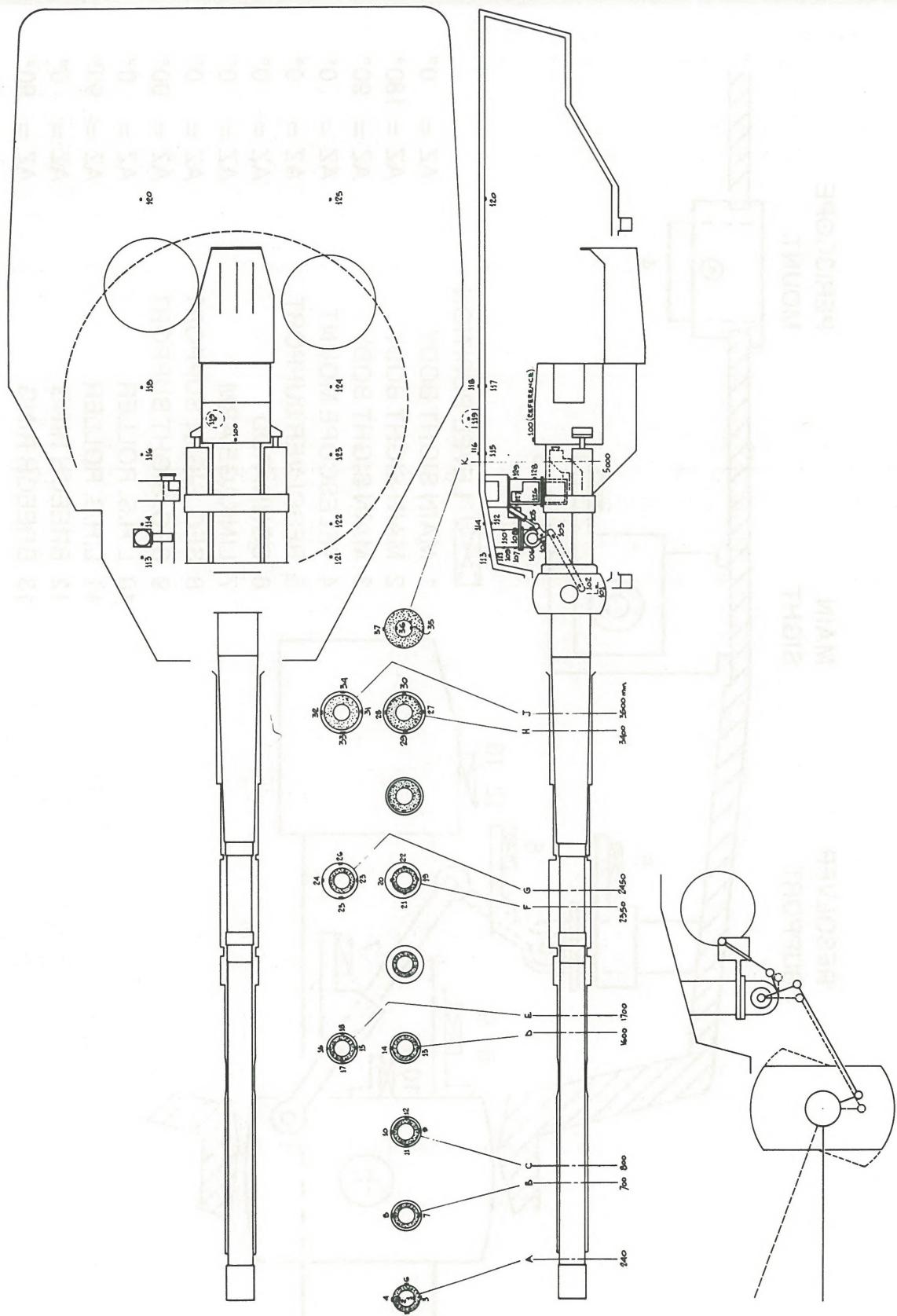


FIG. 3 — Temperature Sensor

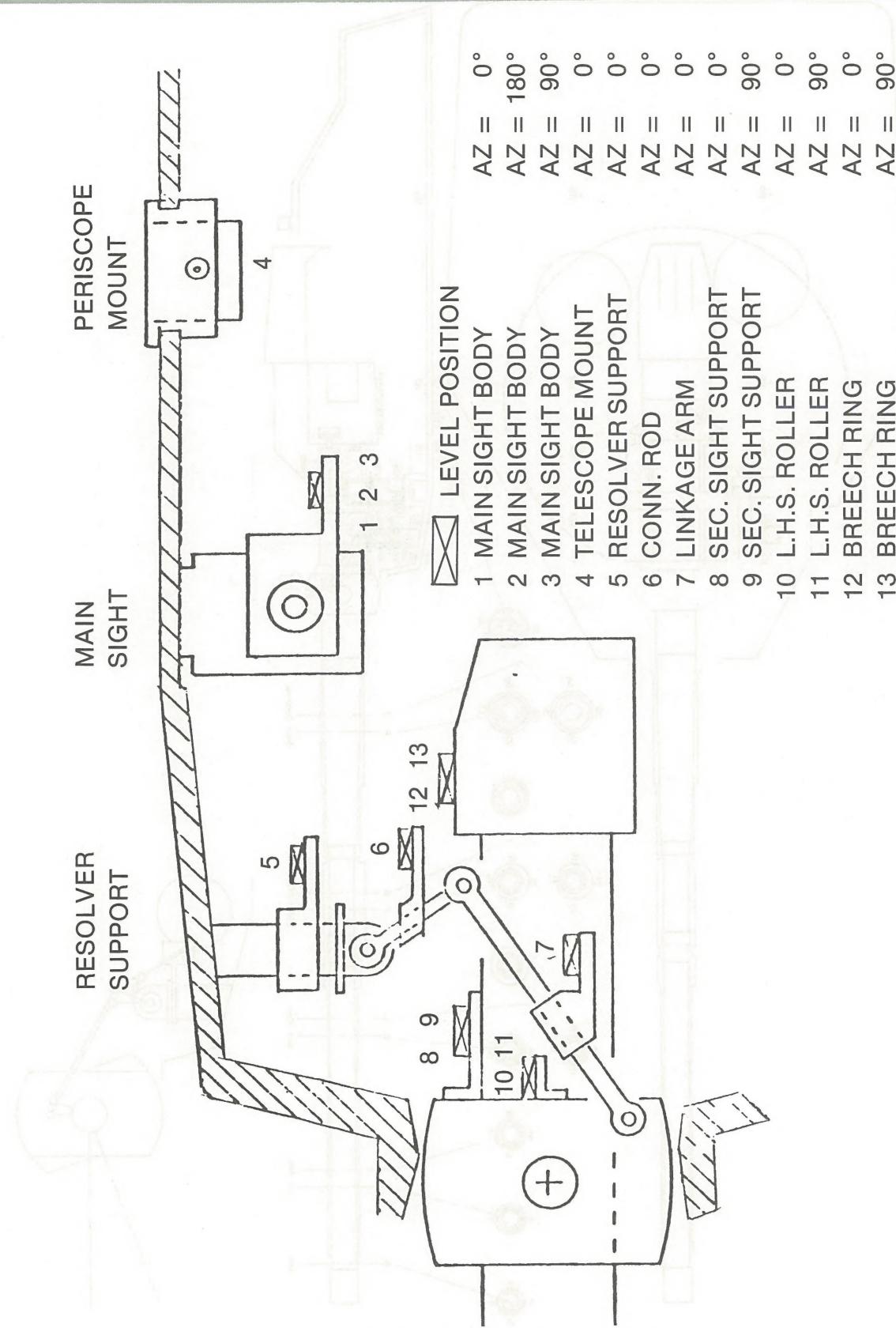


FIG. 4 — Level Adaptors

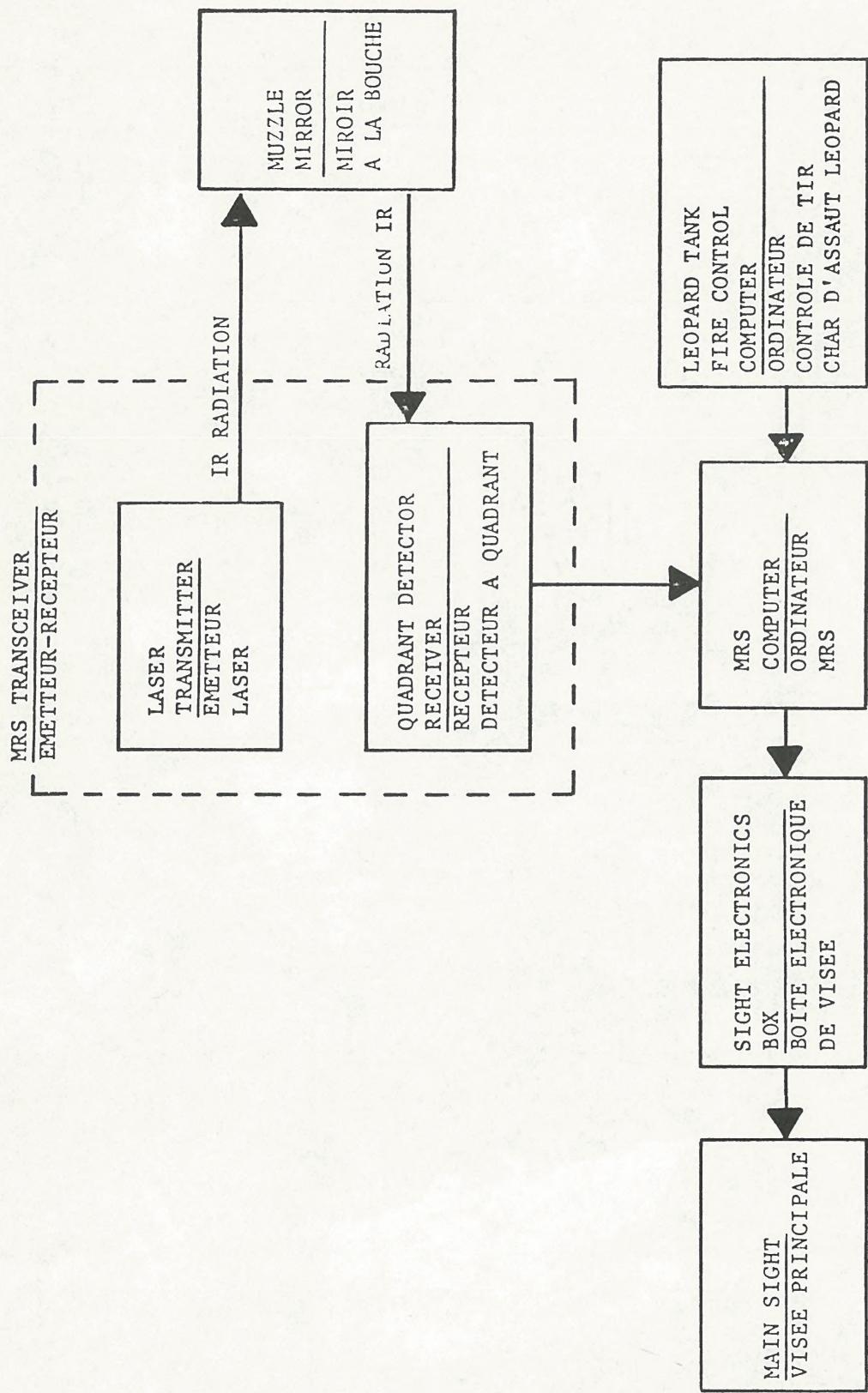


FIG. 5 — MUZZLE REFERENCE SYSTEM

